The Iron Age

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A Review of the Hardware, Iron and Metal Trades.

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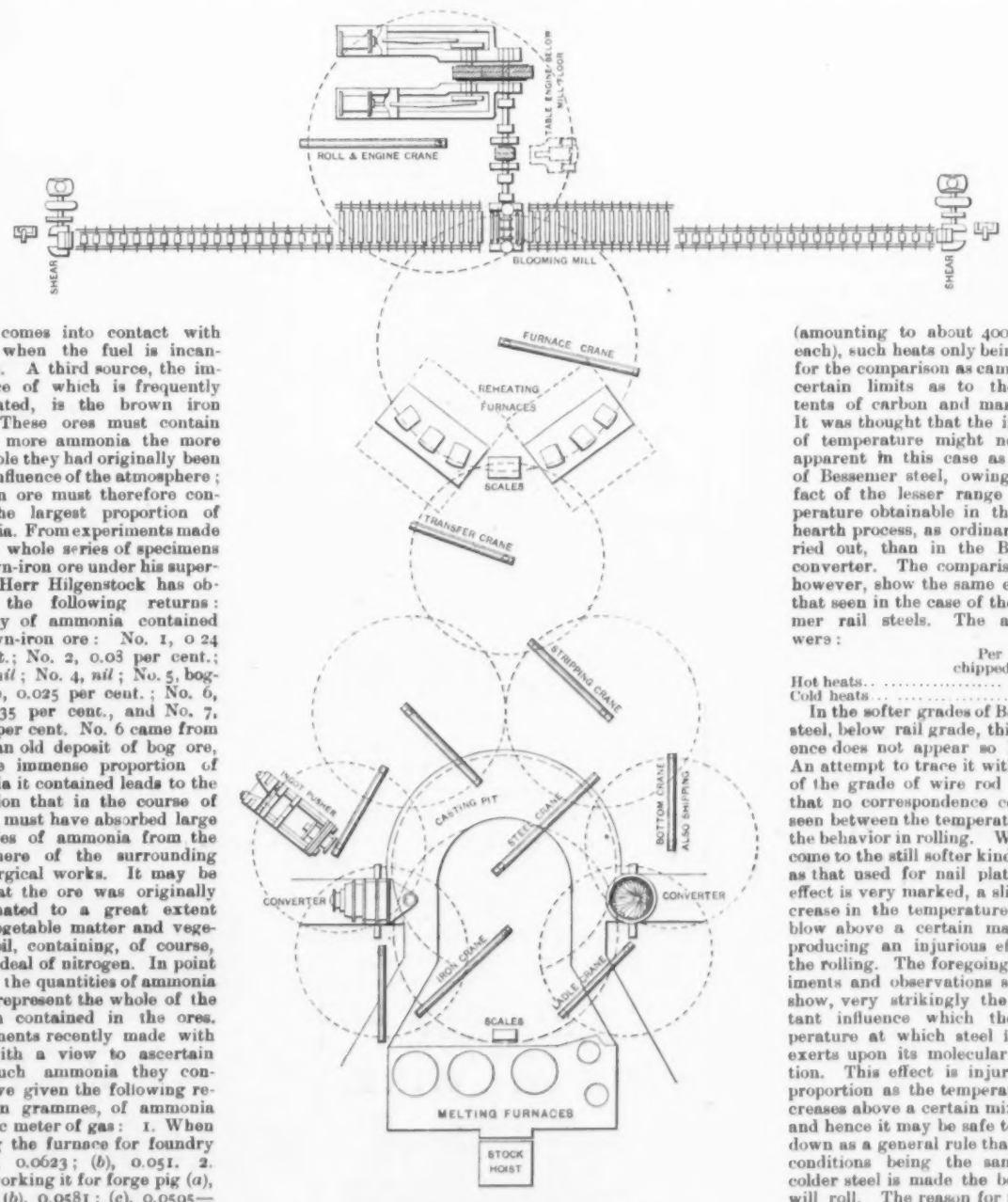
The Wainwright Bessemer Plant.

Mr. Jacob T. Wainwright, C. E., who is connected with the Pittsburgh Bessemer Steel Company, Limited, has designed a plant for a Bessemer steel mill which contains some features worthy of attention. Our illustration shows a plan of the proposed mill, which has been designed after comparing the merits of the various types of mills now existing and in process of erection. The converting department is essentially the same as that at the Pittsburgh Bessemer Steel Company's works, at Homestead, which, it is claimed, has proved to be a most efficient and economical converting mill. Since the arrangement of that plant has not as yet, to our knowledge, been described, it may be well to point out its features. The pig metal, coke and limestone are raised from the metal yard to the charging floor of the cupola furnaces by means of the stock hoist. The slag is tapped into the tunnel under the furnaces, while the fluid iron is run into a ladle placed on scales. When this ladle has received the quantity of iron which is desired to make a heat, it is lifted from the scales by means of the iron crane, and the contents poured into the converting vessel, which is placed low and blows out of the building. After the metal is blown, the final additions are made either in the converter or in the casting or steel ladle, which is carried on the steel crane shown. The molds are placed in the casting-pit shown. It will be observed that each vessel is provided also with a bottom crane. The molds are lifted from the ingots by the stripping cranes, an ingot pusher, shown in the drawing, being provided to push the ingot from the mold if it fails to strip. It is simply a hydraulic plunger. The stripping cranes place the ingot within reach of the transfer crane, with the aid of which they are put on the scales shown between the reheating furnaces. The latter are the ordinary Siemens regenerative-pit furnace. The furnace crane handles the ingots at the reheating furnaces and transfers them to the blooming mill. The novelty of Mr. Wainwright's design consists in the arrangement of the blooming department. The train is placed at right angles to the line running through the center lines of the converters. The blooming mill is provided with two shears, so that the shearing capacity of the mill will be sufficient to allow the converting and blooming departments to be run at their full capacity when making merchant steel, an important matter when it is known that in the mills manufacturing rail slabs the capacity is much reduced through the inability of one shear to take care of the output when the pieces are small.



THE WAINWRIGHT BESSEMER PLANT.

METALLURGICAL NOTES.

Ammonia in Blast-Furnace Gases.

Herr Hilgenstock, one of the most progressive of German blast-furnace managers, had his attention drawn, during the course of a series of experiments made at Hoerde, to obtain magnesia for lining basic converters, to the ammonia contents of coke blast furnaces. Of course, when raw coal is used, it is known that large quantities of ammonia are contained in them, and it is being largely utilized in the Scotch furnaces. But the matter has not been looked into for coke furnaces. The results of a quantitive determination of the coke-furnace gases were as follows, the quantities given being those found in 3 cubic meters, or 115 cubic feet:

1. Making Thomas pig... 0.325 gram of ammonia.
2. Making Thomas pig... 0.479 gram of ammonia.
3. Making foundry pig... 0.326 gram of ammonia.
4. Making high-grade silicon pig (12 to 15 per cent. Si)..... 0.719 gram of ammonia.

In all these cases the furnace consumed on an average rather more than 100 tons of coke in 24 hours; that is to say, taking no notice of differences of temperature, some 350 c. m. of gas must have been produced per minute. Thus, the quantity of ammonia produced from each ton of coke consumed represents the following quantities for each of the four trials: (1) 0.54 kg.; (2) 0 81 kg.; (3) 0.54 kg.; (4) 1.20 kg. This makes it possible to institute a comparison between the proportion of ammonia obtained from this furnace and that produced from the gases of Scotch furnaces. According to Bell, the analysis of the gases derived from such furnace gave 2.54 kg. of ammonia for every ton of coal consumed and 0.94 per cent. of nitrogen. The nature of the experiment does not make it appear improbable that a large proportion of the ammonia obtained was produced during the progress of the operation from cyanide of potassium that may be supposed to have existed within the gases.

It is frequently held that the source of ammonia in the gases of coke blast furnaces is the nitrogen blown in with the blast. This theory is based upon the assumption of a reaction which is thought to take place when atmospheric air impinges upon incandescent coal. The mixture of nitrogen and carbonic oxide arising therefrom comes in contact with the carbonate of potassa in coal, whereby cyanide of pottassium is formed and ammonia itself is produced by steam combining with such cyanide of potassium. The question arises, Is this assumption borne out by actual facts? A simple experiment made by Herr Hilgenstock in the case of one furnace enabled him to form a correct notion on the subject. If, after tapping the furnace, and before the cinder has had time to rise again, the gases proceeding from the open cinder notch are led into water through a gas-pipe, the water becomes alkaline in a surprisingly short time. The liquor produced contains substantially cyanide of potassa, cyanide of potassium and carbonate of potassa, and during the process of evaporation produces extraordinary quantities of ammonia. The composition of these salts is obviously analogous to that of the salts that are occasionally found in the form of a solid or semi-liquid mass in the tymp or the cinder notch. The analysis of the salts alluded to gives the following data:

Insoluble.

	Per cent.
Coal	1.37
Scoria	6.39

Soluble.

	Per cent.
Sulphide of potassium	2.99
Carbonate of potassa	36.52
Cyanide of potassium	49.58
Cyanide of potash	1.15
Silicate of potassa	1.75

It is an easy thing to produce in this way pounds of the salts referred to.

A second source of the ammonia is the nitrogen, always contained in the coke, which comes into contact with steam when the fuel is incandescent. A third source, the importance of which is frequently underrated, is the brown iron used. These ores must contain all the more ammonia the more accessible they had originally been to the influence of the atmosphere; bog-iron ore must therefore contain the largest proportion of ammonia. From experiments made with a whole series of specimens of brown-iron ore under his supervision, Herr Hilgenstock has obtained the following returns: Quantity of ammonia contained in brown-iron ore: No. 1, 0 24 per cent.; No. 2, 0.03 per cent.; No. 3, *nil*; No. 4, *nil*; No. 5, bog-iron ore, 0.025 per cent.; No. 6, *id.*, 0.435 per cent., and No. 7, *id.*, 14 per cent. No. 6 came from rather an old deposit of bog ore, and the immense proportion of ammonia it contained leads to the conclusion that in the course of years it must have absorbed large quantities of ammonia from the atmosphere of the surrounding metallurgical works. It may be also that the ore was originally impregnated to a great extent with vegetable matter and vegetable soil, containing, of course, a great deal of nitrogen. In point of fact, the quantities of ammonia quoted represent the whole of the nitrogen contained in the ores. Experiments recently made with gases with a view to ascertain how much ammonia they contain have given the following returns, in grammes, of ammonia per cubic meter of gas: 1. When working the furnace for foundry pig (*a*), 0.0623; (*b*), 0.051. 2. When working it for forge pig (*a*), 0.0569; (*b*), 0.0581; (*c*), 0.0595—(*a*) and (*b*) in front of the mouth, (*c*) in front of the Whitwell apparatus. This is equivalent to only 0.25 kg. of ammonia or 2 kg. of sulphate per ton of coke, while Baird & Co. obtain, using raw coal, 13 6 kg. of sulphate of ammonia from every ton of coal. The quantity is certainly too small to give promise of the profitable extraction of ammonia from the gases of coke furnaces.

The Influence of Temperature on the Behavior of Ingots in Rolling.

The fact has long been known, says Mr. John W. Cabot, of Bellaire, in a paper read before the Mining Engineers, that the temperature at which steel is made and cast bears a very important relation to the molecular condition of the cast ingot. But until quite recently this fact has not received the consideration which its importrnce seems to justify. That the ingots from a very "hot" blow in the Bessemer converter, for instance, would not roll as well as those made at a lower temperature, was observed very early in the development of the process, but the further investigation of the effects of varying temperature from "hot" to "cold" has not been carried out with that degree of fullness which has been accorded to the effects on the rolling of the chemical elements and other conditions in the manufacture. An investigation of this subject was undertaken with the view of determining how far the influence of temperature extends, through how great a range its effects can be traced, and what temperature in the making and casting seems adapted to give the best results in the rolling of the ingots. In the series of observations forming the basis for the conclusions arrived at, while it was not possible to get the full chemical analysis of every heat considered, a complete record of each in other details was made, and a large number of these were averaged together to give the figures on which the comparison was based. The observations included Bessemer rail steel and open-hearth spring steel. The effect of cold pouring having been first noticed, the following record of a cold-poured heat is cited, being selected out of many such observed. A heat which had worked cold in the blowing was allowed to remain in the vessel 20 minutes after the completion of the blow. After adding spiegel, as usual, it was poured, being so cold that it would just pour without chilling, leaving a heavy skull in the ladle. The heat worked extremely well all through, and the ingots rolled perfectly, there being no blooms requiring to be hot-chipped. The general correspondence between the blooming and the temperature at casting is shown by the case of three consecutive heats, one of which was made "hot," the second "medium" and the third "cold." The record shows:

Temperature.	Rolled.	Chipped Blooms.
Hot	Badly	8
Medium	Fairly	5
Cold	Well	4

The next instance presented is that of 24 consecutive heats of one day's working, the first 12 of which were made at a low heat, while the latter 12 were made at a considerably higher temperature. The average percentage of chipped blooms in the first lot was 27; by increasing the temperature about 25 per cent., the average per cent. of chipped blooms in the second lot was increased to 45. These cases, selected from many such observed and recorded, show the bad effects on the rolling of the higher temperature at casting. In order to become satisfied that these effects were not caused by other and accidental circumstances, and to meet the objection which might be raised—that such instances were not of sufficient number to warrant the conclusion—a much larger number of heats was taken for comparison. The temperature records and rolling records of 400 heats were collected and tabulated. Of these, 100 heats were made "hot." These were arranged together, and their average rolling record was taken, the basis being the number of blooms in each heat requiring to be hot-chipped. One hundred heats made at each of the points of temperature, "medium," "cool" and "cold," were treated in a similar manner. This gave four lots of rail steel ingots made at varying temperatures, but in other details of the manufacture as nearly alike as it was practicable to get them, and aggregating something over 2500 tons of ingots. The averages taken on so large a scale as this would, it was thought, eliminate accidental effects. In the absence of any known means of correctly measuring the actual temperatures of these heats, this was determined by the eye. The averages of the four series of heats were as follows:

Temperature.	Per cent. chipped blooms.
Hot	30
Medium	34
Cool	24
Cold	25.5

The investigation was extended to the higher grades of steel, by getting the average rolling record, as before, of two lots of open-hearth spring steel, the first of which was made hot, the second cool. Each lot consisted of the same number of heats (amounting to about 400 tons in each), such heats only being taken for the comparison as came within certain limits as to their contents of carbon and manganese. It was thought that the influence of temperature might not be so apparent in this case as in that of Bessemer steel, owing to the fact of the lesser range of temperature obtainable in the open-hearth process, as ordinarily carried out, than in the Bessemer converter. The comparison did, however, show the same effect as that seen in the case of the Bessemer rail steels. The averages were:

	Per cent. chipped blooms.
Hot heats	30
Cold heats	11

In the softer grades of Bessemer steel, below rail grade, this influence does not appear so largely. An attempt to trace it with steels of the grade of wire rod showed that no correspondence could be seen between the temperature and the behavior in rolling. When we come to the still softer kinds, such as that used for nail plates, the effect is very marked, a slight increase in the temperature of the blow above a certain maximum producing an injurious effect on the rolling. The foregoing experiments and observations seem to show, very strikingly the important influence which the temperature at which steel is made exerts upon its molecular condition. This effect is injurious in proportion as the temperature increases above a certain minimum, and hence it may be safe to lay it down as a general rule that, other conditions being the same, the colder steel is made the better it will roll. The reason for this lies in the fact that the tendency to the formation of cracks in the ingot, due to unequal internal strains from excessive shrinkage, during slow solidification, is greater in steel cast at a high temperature. The different behavior in the rolls of a very hot cast ingot and a very cold one sustains this view. The cracks appearing in an ingot cast too hot are few in number, large, deep and sharply defined, and are situated in the lower half of the ingot, the top generally rolling smoothly, while in the case of an ingot poured too cold the cracking appears at the top, and has more of an irregular "red-short" character. The bottom of the ingot rolls smoothly, and the long, deep contraction cracks peculiar to hot-poured steel rarely appear. The bad rolling of the tops of ingots made too cold is caused by gas cavities which collect near the top of the ingots. By carefully examining a section of a cold-made bloom, it will be noticed that the cracks are in reality gas cavities which, having been arranged above the inner surface of the shell of the ingot and perpendicular to it, have been drawn out by the rolling into short, shallow cracks, entirely different in character from the cracks characteristic of hot-made steel, which latter, remaining liquid so much longer, allows the gas to escape more fully, and leaves the upper part of the ingot free from this defect. Now, between these two extremes, the point of temperature most favorable to the mechanical condition of the ingot is that which will reduce the cracking at each end to a mimimum. This point, as indicated in the averages of heats, is that called "cool." It will be noticed that those heats made "cold" did not roll as well as those made "cool," this being due to the increased red-shortness at the top, caused, as explained above, by the imprisoned gas bubbles. This effect of temperature on cast steel is seen in the case of steel castings, which, as is well known, will tear themselves apart through excessive internal strains if cast too hot. The relation between the temperature of the liquid steel as cast and the subsequent condition of the chemical elements in the ingot is evidently very close. Any tendency of the elements to redistribution toward the center, or any other change, would be very much diminished if the steel were poured at so low a temperature that it solidified rapidly. From the chemical point of view, the relation of temperature to the composition of steel is all-important. It is indeed the fundamental consideration in all the reactions of oxidation and reduction carried on in our steel-making and other metallurgical processes. There is a certain point of temperature for each element at which it exhibits its maximum affinity for oxygen; either above or below, this affinity is weaker. To control our oxidizing operations, as well as the chemical composition of the resulting steel, this question of temperature, as affecting the relative oxidation of the elements, must be carefully considered. Silicon, we know, oxidizes most readily at a lower temperature than carbon, iron at a higher. To get our best results, therefore, in the elimination of silicon, carbon and manganese, in a Bessemer blow, the temperature must be so regulated that the bath will not be so hot as to prevent the last traces of silicon from oxidizing, and yet not so cold that the carbon will not all go out. It is a well-known fact that in a very hot blow the silicon is not al taken out. If the temperature is too high, the iron is more strongly attacked, and the bath, in recarbonizing, gives off large quantities of carbon gases, and injures the quality of the steel, as is seen in the case of very soft Bessemer steel when made too hot. Considered from both the mechanical and the chemical point of view, the question of temperatures in steel-making is one of at least as much importance as those of chemical composition and mechanical treatment.

Rowland's Determination of the Ohm.

The extended series of experiments which have been instituted for the determination of the ohm have recently been completed by Professor Rowland, who has submitted his report to the Government. This redetermination, which was made under an appropriation from the Government, gave Professor Rowland an opportunity to remeasure the coils with which he experimented in 1878, and it transpired that he had not allowed sufficiently for the sinking of one layer of wire into another when one winds a coil. According to the *Electrical World*, the following are the results:

Date.	Observer.	Value.	Weight.	Method.
1878	Rowland	106.16	1	Kirchoff
1883	Kimball	106.25	1	Kirchoff
1884	Rowland and Kimball	106.31	2	Kirchoff
1884	Rowland, Kimball and Duncan	106.29	3	Lorenz

The mean of the American results is 106.25, using the American value of the mercury unit 0.95349. Using the value by which all others are reduced (0.95384), it would be 106 21, while the mean of all other results is 106.2. A new comparison of coils with those of Lord Rayleigh is to be made. It will thus be seen that the principal variation between the American and foreign results is in the determination of the mercury unit. The close agreement of Professor Rowland's results with the mean of others, and especially with that of Lord Rayleigh, leaves little doubt that the true value cannot be far removed from that found This determination may strengthen the assertion of Sir William Thomson, that 106.2 mm. will be the value adopted in the near future.

The mayor of Montreal presided at a meeting of business men last week, in furtherance of the objects of the Free Navigation League. The idea, he said, was "to make the canals of Canada as free as possible, so as to compete with the Erie and other free canals of New York." A statement for the careful consideration of all citizens interested in the Dominion was unanimously adopted, representing that "the carrying trade via the St. Lawrence has suffered incalculable injury by being placed in competition with rival routes that have abandoned direct taxation, more particularly in respect of grain, which continues to be the chief staple of our export trade, and without which all other branches of export and import trade will suffer."

A dispatch from Eau Claire, Wis., states that the Eau Claire Chilled Plow Company have made an assignment, the principal creditors being the Bank of Eau Claire, the Chippewa Valley Bank and the Eau Claire National Bank. The bond of the assignees is $106,000.

The Anglo-American Cable Company report a decrease in traffic receipts of £92,730 owing to the competition of the Commercial Cable.

An English Cable Road.

Mr. W. N. Colam recently described before the British Society of Engineers the Highgate Hill Cable Road, the first which has adopted this method of propulsion in Europe:

Highgate Hill is a well known steep incline rising from the junction of Archway Road, Junction Road and Holloway Road, in the parish of St. Mary's, Islington; about half-way up the ascent it is intersected by two other parishes, viz., Hornsey and St. Pancras, finishing opposite the old historical "Gate House." The summit of this hill and its surroundings is a great holiday resort for Londoners, and on many occasions this line has been severely tested by excessive and sudden rushes of traffic, which would have proved too much for any other system of tramway to have met. The principle of the system working at Highgate is the same as on all the other cable lines in operation, but the details of construction differ in many respects. The gauge of this line is 3 feet 6 inches and it commences at the foot of the hill just where the rails of the North Metropolitan line terminate. The total length is 3800 feet, of which 3300 is double track and the rest single. The total hight ascended is 239 feet, and the steepest gradient is 1 in 11. The tube is made of good strong concrete, and is connected with the concrete required by the local authorites for supporting the set stones and rail chairs. Tube frames of cast iron, weighing 120 pounds, are embedded in the tube at intervals of 3 feet 6 inches. The object of these frames is to support the Z-shaped steel rolled beams which form the slot in the road for the gripper shank; these beams, which weigh 36 pounds per yard, are shown bolted to the cast-iron frames. The rail adopted weighs 43 pounds per yard, and is that known as Dugdale's patent. It is supported on cast-iron chairs placed opposite each tube frame, to which they are connected by the bolts, firmly securing the gauge true to the slot. The slot is ⅝ inch wide. From the surface of the road to the bottom of the tube is 17 inches, and the width of the tube is 8½ inches.

At intervals of 40 feet recesses are made in the concrete for receiving the 12-inch cast iron pulleys which support the cable in the tube. The pulleys run loose on spindles screwed into castings which are held in their places by bolts built into the concrete. The pulleys are kept on the spindles by check nuts, which can be easily taken off while the cable is in motion, and the pulley removed and replaced through the hatch in the road. The hatch covers are light cast-iron boxes filled with hardwood, and are dropped into cast-iron hatches which rest partially on one wall of the concrete tube and on the bottom flange of the Z beam. The hatch is built in by the paving, and cannot be detected easily in the road. The pulleys are lubricated by Stauffer's patent lubricators screwed into the end of holes bored up the centers of the spindles. At the single portions of the track, where the cable runs in opposite directions through the same tube, the spindles are made longer, and two pulleys placed on them instead of one. These pulleys are inserted where the road curves, and can be removed in the way alluded to before. All the recesses are drained into the sewers.

There are three portions of single track, and at the junction of the double and single tracks two tubes have to verge into one. The slots in following the tubes also converge, and in doing so leave a portion of the road between the slots unsupported. The designing of these points in cable tramways will always require considerable experience, only to be obtained by careful observation during the working of such tramways. The triangle formed by the junction of the two slots is a cast-steel trough which is rigidly bolted to the Z beams and supported by a cast-iron frame from beneath. The apex of the triangle is a strong steel spring screwed to the steel trough. This spring is sprung under the top bend, and against the side of the Z-beam, where it is supported on a plate bolted to the side of the beam. Thus the slot is always open for the grip shank of the ascending cars. The inside of the steel trough is filled with set stones, thus reducing the metal on the surface of the road to a minimum.

Mr. Colam next proceeds to describe the three brick pits under the roadway, and the machinery in them for diverting the cable at each end of the line, and at the point where it leaves and return to the tube in passing to and from the driving gear in the engine room:

1. The terminal pit at the bottom of the hill. This pit is rectangular in shape, 18 feet long by 10 feet wide, and 7 feet deep from the surface of the road. It is strongly roofed over by rolled-iron joists and concrete. It is lighted by gas, and access is obtained to it through a manhole in the road. The machinery inside this pit consists of a narrow cast-iron pulley 8 feet in diameter, with V-shaped jaw; it is free to revolve horizontally on a pin vertically let into a cast-iron carriage mounted on four wheels. The wheels rest on and traverse the lower inside flanges of two rolled-iron joists set at an inclination, between and along which the carriage is free to move backward and forward. A chain is fastened to the lower end of the carriage, and is led over suitable gear to a heavy dead weight, the object of which is to keep the necessary strain upon the cable.

2. The terminal pit on the top of the hill. This is also a brick pit 18 feet long and 4 feet 10 inches wide, and 10 feet deep from the surface of the road. The parts of the cable approaching and returning to and from this pit are quite close together; the cable has therefore to be returned to the tube in a different way to that adopted in the lower pit. As the slot passes over a portion of this pit the roofing is made to carry the castings for supporting the slot beams. In this pit are two cast-iron pulleys of 8 feet diameter, one placed immediately in front of the other, one revolves in a vertical plane, while the other is canted sufficiently to throw its top out of plumb the same distance as from center to center of cable when passing through the single track.

3. The pit in front of the engine-house is also of brick, and is so constructed as to be

approached from the engine-room. It contains four 8-foot pulleys. The tube slot runs the length of this pit. The slot beams here are bolted to special castings which are mounted on short cross-iron joists resting on longitudinal joists. This arrangement leaves the slot open to the pit beneath. The engine-room is in the basement of the depot, the ground floor of which is used as the car shed.

In selecting the engine for working this line two important points had to be taken into consideration, first, that they should have a most sensitive automatic cut-off valve gear; and, second, that they should be powerful enough to do the work of an extension 2 miles long. The nature of the work on cable tramways varies so much and so quickly that within an incredibly short space of time the engines may be seen both working hard and hauled around by the load. The engines chosen were a pair of high-pressure horizontals, with cylinders 14 x 28 inches, built by Messrs Grafton & Co., of Cannon street. They are fitted with Collmann's patent valve gear, which is a very good one for the purpose. These engines have always done their work satisfactorily, the valve gear being so effective that the break arranged to act on the fly-wheel is never called into play. The engines can be disconnected and worked separately when required.

On the engine shaft is fixed a cast-iron helical toothed pinion which gears into a larger cast-iron wheel keyed on a counter-shaft, which also carries the grip pulley. It is this pulley which does all the work of hauling in the cable from the road. The jaws are of long V shape, and can be adjusted by thinning down or packing up the wood bolted between the segment castings which form the jaws. Although this class of pulley gives the cable a rather severe pinch, it releases the cable freely, which is a great point in its favor, especially when used as at Highgate. These pulleys were made by Grant, Ritchie & Co., of Kilmarnock. Immediately in front of the grip pulley, and in line between it and the pulleys, is the arrangement for taking up the slack of the cable, which is something considerable when new or freshly spliced. Changes in the atmosphere will also affect the lengths of the cable. This taking-up arrangement consists of two long, rolled joists laid parallel to each other, 18 inches apart and a little above the floor level. On the top flanges of these joists are mounted two 8-foot pulleys, the shaft of the one nearest to the grip pulley turning in journals forming part of a horseshoe-shaped casting, which is arranged to be moved either way along the tops of the joists by suitable screw gearing. The front pulley is fixed on a shaft which turns in journals bolted firmly to the flanges of the joists. This latter pulley can be moved forward from time to time and bolted down as before, the operation being repeated as often as the stretching of the cable has exceeded the capability of the sliding pulley to take it up.

The boilers for supplying the engines are those known as the Babcock & Wilcox sectional type, with water tubes, and are worked up to 100 pounds pressure. This class of boiler is being used very much in the United States on cable tramways. For feeding the boilers a small vertical donkey pump and an exhaust injector have been provided, the latter delivering the water into the boilers at a temperature of about 180° F. The speed of the cable is 6 miles per hour. Starting from the top of the grip pulley, the cable makes one half-turn, and passes to the furthest and fixed pulley on the taking-up gear; it there makes one half-turn and comes to the top, and passes over the pulley in the horseshoe casting, where it is again sent down and straight off to the bottom of the left-hand pulley, which directs it up to the large pulley set in line with the tube in the road, whence it is sent on its way down the hill, supported on pulleys. On nearing the bottom of the hill the tube is not led straight into the lower pit, but is carried round between the tracks of the first turnout. The cable leaves the tube at this point, and passes through 10-inch pipes into the lower pit, and on to the horizontal pulley, which directs it into the up-hill tube, in passing through which it is supported in the same manner as in the down-hill tube. Upon reaching the upper terminal pit the cable passes the first pulley on to the top and over the second, around which it makes a three-quarter turn, and is sent up to the top of the first pulley, which is slightly canted to return it into the tube, close to the up-hill portion of the cable; from it the cable passes down the hill until it reaches the pulleys, where it is deflected downward and into the engine-room, where it rises gently until it again reaches the grip pulley from which it started. The long length of cable which passes in sight through the engine-room enables any fracture of a wire to be quickly detected, which can be remedied at once or at night, as the importance of it demands. The cable used is 8200 feet long, and is 3 inches in circumference. It is made up of 114 crucible-steel wires of No. 16 wire gauge, and formed into six strands wrapped around a hempen core. The guaranteed tensile strain of this cable was 80 tons to the sectional square inch. The grip is made of cast steel, and consists of two principal parts, one of which is in the same piece with the lower and movable jaw, and the other with the upper and fixed jaw. The wedge in being forced into or withdrawn from a shoe raises or lowers the casting holding the lower jaw. The cable is thus seized firmly or slightly or allowed to run through the jaws, as it may be required that the cars should travel full speed, slow or stand still, and by opening the jaws wide the cable automatically leaves the grip. The jaws are lined with soft pieces of cast iron, which can be easily and quickly removed and replaced. Two grips are fitted to each car, one on each end.

The grips have hold of the cable while descending as well as in ascending the hill, and only release it at the termini and in passing the pulleys in front of the engine-room. At the latter place, as the cars slowly near the pulley, the drivers open their grippers wide, and the cable automatically leaves the jaws. The cars then descend by gravitation along the few feet of deviated track, the object of which is to take the grippers past and clear of the pulleys. On the cars again reaching the straight track the cable automatically slides into the jaws of the grippers, left open to receive it, and the drivers have only to screw up their grippers, when the cars are again carried on at the speed of the cable.

English Letter.

(*From Our Regular Correspondent.*)

LONDON, July 13, 1885.

THE WEEK

has brought the quarterly meetings, no particular alteration in the general business situation, and several failures in the Midland iron trade. Of the first of these happenings I speak more fully later on, and of the last there is virtually nothing to say that would specially interest American readers. The few leading facts and figures I present elsewhere are all that need be given further than the passing remark that such stoppages in the Midlands have been deemed probable for some time past, bearing in mind the disadvantages under which some of the Staffordshire people labor. Many of them have extremely old-fashioned plant and appliances, which they have not sufficient capital to replace in modern style. Others are fairly well off in point of both plant and pecuniary means, but are so slow that they are behind the times and seem content to live upon the reputation of the days when Staffordshire possessed nine-tenths of the rolling mills of Great Britain. Then, again, other localities have moved faster, and, by being on or nearer the seaboard, have competed successfully for export and some departments of the home trade. The North of England men, in fact, have successfully invaded Staffordshire itself, and have sold their iron in Birmingham against all comers. Thus it has come about that the old center of the finished-iron trade has lost a good deal of its former business, and conducts its operations under conditions which render it difficult for it to live. Of the quarterly meetings I think it right to remark that they are not unlikely to go the way of the former fairs. They represent a remnant of the old way of congregating together for business purposes, and are largely discounted by the penny post and the facilities for traveling and telegraphy. They survive, I am well aware, because men like occasionally to meet and talk over their affairs—or their neighbors'—but much is done prior to the dates of the meetings, and more still after they have taken place. A daily or even a weekly 'change is useful, because one can depend upon meeting a man there, whereas he might be difficult to catch at his office, but the quarterly meeting, *per se*, is becoming effete, and will sooner or later disappear. Of all the great fairs of Europe very few remain, and of the whole only those at Nijni-Novgorod and Leipsic possess any vitality.

The Board of Trade returns for June have again been seized upon by the fair traders in evidence of the decline of British trade, and the occasion has been taken to magnify the wisdom and statesmanship of the new Ministry in issuing a Royal Commission to inquire into and report upon the depression of trade.

THE IRON MARKET

is very much as of late, the general course of things being dull, with a low level in values, but with a little more business doing here and there. As has been the case for months past, the complaint is not so much as to the volume of trade as to prices, but, all things considered, there seems to be no doubt that we are quite as well off as, and perhaps a little better than, any other country which carries on the iron and steel trades to any extent. At Glasgow the week has been characterized by quietude, the statistical position being distinctly adverse to operations for the rise. In warrants a little business has been done, the closing price being 41/ ₽ ton. Makers' brands of Scotch pig are unaltered, but weak and nominal. Last week over 2300 tons were added to Connal's stock, which now amounts to more than 604,000 tons, or 15,000 tons more than at the same date of last year. At the same time shipments are 61,000 tons behind those of the same period of last year, while the importations of Middlesboro' pig iron into Scotland have increased this year by 59,000 tons. At Middlesboro' the market does not appear to have been greatly impressed, either by the official returns showing a further growth of stocks during June, or by the Board of Trade returns as to pig iron; indeed, values are so low for Middlesboro' pigs that there seems scarcely room for any further depreciation. With No. 3 at about 32/, indeed it is not easy to perceive where the profit of the smelter comes in. In West Coast hematites there is little life, and values remain at about 43/, 42/6 and 42/ for Nos. 1, 2 and 3 respectively, mixed lots being 42/6 @ 43/, in usual proportions. Shipments of hematite pigs to July 4 show a decrease of 67,093 tons this year, and an increase of 19,057 tons in stocks, notwithstanding the fact that there are only 43 furnaces at work, against 55 a year ago. Elsewhere pig iron is quiet, and not in great request. The quarterly meetings have not affected values at all. Swedish hammered bars are £8. 17/6 @ £10, ex-ship. Old materials are unaltered and neglected. Freights are about as of late, pig iron by ordinary steamers from Glasgow to New York being easy at about 1/ ₽ ton. With regard to the Bristol Channel ports, Edwardes, Robertson & Co., Cardiff, advise me: "No move has taken place in the outward rates for berth ships, the freights still ruling at about 7/6 ₽ ton. Shipments for the past month have considerably fallen off as compared with the figures for the previous month." Mr. W. Balchin, London, reports: "Since my last circular, freights by steamer to the Australian colonies have remained firm, but few concessions being made for large parcels. In rates of freight by sailing ship to Australia there is no alteration, vessels continuing to fill up and be dispatched to date; and, there being a very fair supply of cargo in the market, this state of things is likely to continue during the present month. To United States ports outward freights are a

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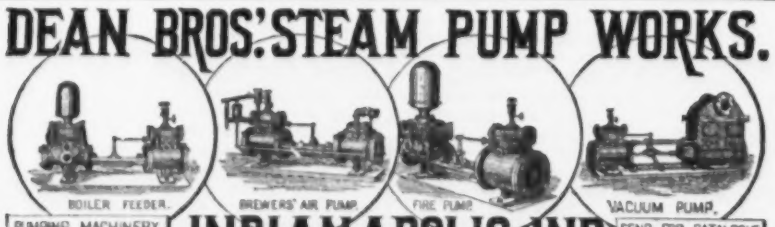

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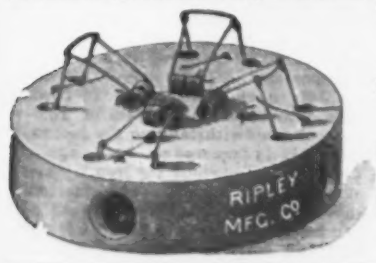

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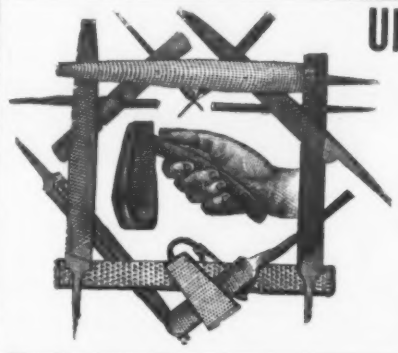

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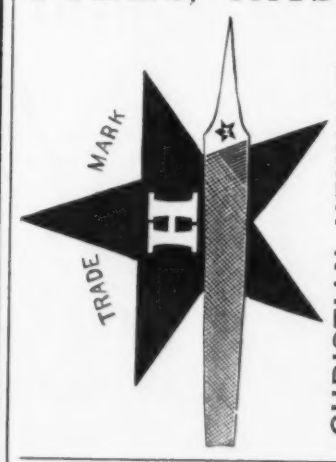

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little firmer, fewer vessels being dispatched on account of the present ruinously low homeward rates. To Canada there is still a very lively competition between the two rival lines from London; freights are consequently much in favor of shippers. To India rates are at present slightly firmer by the regular lines, the outside steamers having been dispatched, and only one vessel having as yet been placed on the berth to follow. To the Cape, freights by both steam and sail are weaker, the state of trade to this colony not having improved." Steel is quiet all round, and there are no features worthy of note, with the exception of the activity which still pervades the Scotch works devoted to the production of steel plates, &c., for shipbuilding purposes. Steel rails are unchanged and not in much request at the former rate of £4. 15/ ₹ ton for usual heavy sections.

SCOTCH PIG IRON

is very quiet all around, but a moderate number of transactions is recorded in warrants, which are the turn better on the week, although some of the special brands are a shade easier. There are now 91 furnaces at work in Scotland, against 96 a year ago. In Connal's stoves there are 604,555 tons, compared with 588,391 tons this date last year. Last week's addition were 2394 tons. Shipments to date are 61,307 tons behind, while the importations of Middlesboro' pig iron into Scotland are 59,773 tons ahead. Current quotations:

Deliverable alongside.	No. 1.	No. 3.
Gartsherrie, at Glasgow	47/6	44/6
Coltness, "	48/6	47/
Langloan, "	48/	47/
Summerlee, "	47/6	44/6
Calder, "	....	44/6
Carnbroe, "	46/6	44/6
Clyde, "	46/3	42/3
Monkland, "	41/	39/
Quarter, "	40/6	38/6
Govan, at Broomielaw	41/	39/
Shotts, at Leith	48/6	48/
Carron, at Grangemouth	51/	47/
Kinneil, at Bo'ness	43/6	42/6
Glengarnock, at Ardrossan	46/6	41/6
Eglinton, "	41/6	38/6
Dalmellington, "	44/	41/6

MIDDLESBORO' PIG IRON

is dull and no great amount of inland business being done at the subjoined figures for G.M.B., f.o.b. at makers' wharves in the Tees:

No. 1 Foundry	35/3	Mottled	31/6
" 2 "	33/9	White	31/3
" 3 "	32/@32/3	Refined Metal	48/
" 4 "	32/	Kentledge	35/
" 4 Forge	31/9	Cinder	30/

HEMATITE PIGS

are somewhat nominal at about 42/6 for mixed lots, while West Coast brands are as under:

	No. 1	No. 2.	No. 3.
Cleator	44/	43/9	43/6
Lonsdale	43/	42/6	42/
West Cumberland	43/	42/6	42/
Lowther	43/	42/6	42/
Harrington	44/	43/6	43/
Solway	43/	42/6	42/
Maryport	43/	42/6	42/

There are 43 furnaces at work on the West Coast, against 55 a year ago. The reserve stocks are 82,955 tons, as compared with 63,895 tons last year.

THE QUARTERLY MEETINGS.

At Middlesboro' on July 5th there was scarcely any business, the market being duller than usual, the transactions taking place being all of a hand-to-mouth character and of limited extent. The stock of Messrs. Connals' warrants is 53,982 tons, an increase of 1250 tons upon the week. The manufactured-iron trade has been very sluggish and the demand has been kept down to a very low point. The late weakening of prices has rather had the effect of keeping back work and specifications. There are at present no indications of improvement, as the reports regarding shipbuilding are less favorable, expecially as respects the demand for iron plates and angles. Steel for shipbuilding keeps in good request, but the rail trade is in a quiet state, taken as a whole. Steel rails are £4. 15/; manufactured-iron bars £4. 15/; angles, £4. 10/; ship plates, £4. 15/, less 2½ %; puddled bars, £3 net. Foundry work is not very plentiful. At Wolverhampton, July 6th, the quarterly meeting was the occasion of the assembling of a larger number of traders than usual. There did not appear to be much desire to enter into forward contracts of much magnitude, either by sellers or consumers. It soon became known that the Lilleshall Iron Company, Shropshire, had determined to make no alteration in their quotation for all-mine pigs, and that they had, in fact, redeclared cold-blast sorts at 80/ ₹ ton and hot-blast sorts at 60/. This lead was followed by the Staffordshire makers, one or two of whom, indeed, asked as much as 62/6 for hot-blast all-mines. Purchasers mostly declined to advance upon 55/ or 57/6. Staffordshire part-mines were very varied in price, according to the mixtures. They might be said to range from 40/ up to 45/, although in a few cases 37/6 was named. Cinder pig was mostly 35/ up to 36/6. The Spring Vale make was quoted at: Hydrates, 52/6; mine, 45/3, and common 37/6. More business was done in Derbyshires and Northamptons and other similar classes of iron than in native makes, and agents reported that during the past fortnight or three weeks considerable sales had been effected. Derbyshire pigs were 40/ ₹ ton, easy, and Northamptons 38/. The reports brought to market by the finished-iron makers varied considerably. Some concerns spoke of being actively engaged, while others reported only a slack time. Firms who have not a considerable merchant connection are doing the least except in cases where the wants of galvanizers are specially catered for. Orders for sheets from these last buyers are arriving in moderate numbers, and an increase will probably be noticeable when the quarterly meetings are well over. Marked bars were redeclared at £7. 10/, a quotation which has prevailed for some 2½ years past, while Earl Dudley's bars were £8. 2/6. It was generally conceded that W. Barrows & Sons and the new British Iron Company were almost the only people who were standing out for the £7. 10/ price, and that the majority of the high-class bar firms were selling at £7, with £6. 10/ as the quotation for their second-class qualities. Medium qualities were £6, and common £5. 10/ @ £5. 5/. Common hoops were £5. 10 @ £5. 15/, and superior qualities 10/ additional. Gas-tube strip was £5 @ £5. 5/ and upward. Rates for sheets were irregular. Hard doubles changed hands at £6. 15/ @ £7, and lattens at £7. 10/. Good boiler plates were quoted £8 @ £8. 10, and tank plates at £7 upward. The market had about it an unsettled feeling. At Birmingham on July 7 the meeting was more numerously attended than the previous one, which fell in Easter week, when many iron-masters were absent on holiday, but it was scarcely an improvement upon its predecessor in point of business. The market was disturbed and depressed by adverse reports and apprehensions affecting the stability of different firms, and before the close of the day it transpired that two iron-making firms and two merchant houses were under the necessity of facing their creditors. A private meeting of the creditors of one of the iron-making firms was held in the course of the day, when a statement was submitted showing about £50,000 of gross liabilities with good assets, though not immediately realizable. The firm in question is an old-established and eminently respectable one, producing both pig and finished iron, and capable of turning out in good times about 450 tons of the former and 500 tons of the latter a week. For some time past, however, one of the works has been closed, owing to trade depression. They offered 7/6 in the pound, payable in three installments. Circulars were sent out also for a meeting of creditors of a local firm of pig-makers whose metal enjoys a reputation. In this the liabilities are not expected to exceed £11,000. An old-established local merchant house trading with India and Scotland acknowledge somewhat heavier liabilities, but in this case the assets are considerable. The most serious event for this district is the suspension of a London shipping firm largely engaged in the galvanized-iron trade, upon which the losses will chiefly fall, one firm being "in," according to current report, for £3000. The attendance of London and Liverpool buyers was below the average. There was very little business offering for shipment, and, as manufacturers generally refused to make further concessions, the few indents were withheld. For local consumption a fair number of small transactions in bars, sheets and pig iron took place, and some good transactions in cheap Welsh bars were reported. Sheet makers bought pig iron in lots of 500 and 1000 tons, chiefly hematites and Derbyshire, but the prices were not allowed to transpire. The quarterly meeting of the galvanized-iron trade was held in private, and no report was made of the proceedings. It was understo d, however, that the makers present generally acknowledged the possession of considerable orders, but at prices which left them only the barest margin of profit.

TIN PLATES.

In London the uncertainty engendered as to the course of this market by the understanding arrived at by the makers to restrict the production has interfered with business to a material extent. Notwithstanding the heavy stocks on hand and the general depression in business, some of the makers are already talking of a rise of 2/ ₹ box as likely to be secured in the near future, and they refuse to book orders except at a considerable advance. This, however, buyers are not, as a rule, disposed to entertain. Australian orders are pretty good. Good brands of B. V. grade cokes are obtainable at 14/, f.o.b. Liverpool. At Liverpool there is a lull; buyers have had to be content with making inquiries and receiving replies, which for the most part have not hastened business much. Whatever may be be the result of the combination to reduce the make, which has now been resolved on, it is certain that makers expect great things in the matter of prices to follow. The market has undoubtedly improved in tone and strength, and the price of tin and terne plates are better all round. Inquiries have run largely on steels and coke tin plates, but chiefly for the former and for forward delivery. There are some good orders in large lines in the market, both for Bessemer and Siemens steel plates, and if these alone have been secured at the Birmingham quarterly meeting at suitable prices some good business will have been done. There are fewer inquiries made for ternes, as few quotations have been given lately, excepting at impossible figures. The business in these is also in a state of suspense. Business in charcoal tins is still of a restricted character, and there is less demand for coke tin wasters. Quotations for coke tins now vary from 13/ to 15/ IC, and Bessemer steels 14/3 @ 14/9 (the former figure, as well as a slightly better one, having been paid). Siemens steel plates are quoted 15/ IC. The shipment of tin plates last month exceeded 325,000 boxes, of which about 195,000 boxes were shipped from Swansea. The continued high price of tin must eventually tell in favor of higher prices for tin plates. Leading quotations include:

Tin Plates, per Box.

	£	s.	d.		£	s.	d.
Coke tin, IC 15 x 20, according to grade	0	14	6	@	0	14	9
Coke tin wasters	0	12	9	@	0	13	0
Best coke tin, according to grade	0	14	6	@	0	14	9
Best coke wasters	0	13	9	@	0	14	0
Bessemer steel, with coke tinning	0	14	0	@	0	14	6
Bessemer steel, with charcoal tinning	0	15	6	@	0	15	9
Siemens soft steel, ordinary finish	0	16	6	@	0	16	9
Siemens soft steel, best, for stamping	0	18	6	@	0	19	0
Best charcoal tin for high-class work	1	1	0	@	1	3	0
Best charcoal or steel tin taggers, 28 W. G.	1	14	0	@	1	15	0
Terne plates, 20 x 14 or 20 x 28	0	13	0	@	0	14	0

Tinned Sheets, per Cwt.

Patent rolled coke, up to 84 x 36 inches, singles	1	3	6	@	1	4	0
Best coke, up to 84 x 36 inches, singles	1	4	0	@	1	4	6
Best soft steel, up to 84 x 36 inches, singles	1	5	0	@	1	5	6
Best charcoal, up to 84 x 36 inches, singles	1	9	0	@	1	10	0

THE BOARD OF TRADE RETURNS

for June show that the total value of the imports was £29,546,964, an increase of £493,333 over the same month of last year. The aggregate value of the exports was £17,717,259, a decrease of £931,885 from the figures for June, 8184. The total value of the exports during the first six months of

INFRINGEMENT OF JOHN WILSON'S TRADE MARK, MASSACHUSETTS, U.S.A

JOHN WILSON'S
BUTCHERS' KNIVES,
BUTCHERS' STEELS,
and
SHOE KNIVES.

TRADE MARK

REGISTERED IN ENGLAND, WASHINGTON, U.S.A., AUSTRALIAN & OTHER BRITISH COLONIES, & GERMANY.

ACKNOWLEDGMENT AND AGREEMENT.

"WHEREAS, I, GEORGE A. ROBINSON, of West Mansfield, County of Bristol, State of Massachusetts, have heretofore manufactured and sold certain Knives bearing a Mark which is claimed to be an imitation of the trade-mark owned by John Wilson, of Sheffield, England, which consists of four peppercorns and a diamond, under the mistaken belief that I had the right to do so.

NOW, This, is to Witness, that, in consideration of the forbearance of the Representatives of the said John Wilson to sue me for damages for the wrong aforesaid, I do hereby undertake and agree,

FIRST, to surrender and deliver to the Attorneys for the said John Wilson, all knives now on hand, and in my possession, or under my control, bearing the said imitation trade-mark, and

SECOND, I further undertake and agree to and with the said John Wilson, and his legal representatives, not to manufacture or sell, or cause to be manufactured or sold, at any time in the future, Knives or other Outlery, bearing his trade-mark aforesaid, or any imitation or simulation thereof. IN WITNESS WHEREOF, I have hereunto set my hand and seal at West Mansfield, aforesaid, this thirty-first day of May, 1883.

WITNESS—
E. M. REED."
(Attorney for Defendant.)

G. A. ROBINSON. L.S.

Imitation ☆0 J.WILSON SHEARSTEEL Mark.

WORKS:—SYCAMORE ST., SHEFFIELD, ENGLAND. Established 1750.

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American Screw Co.'s Wood, Machine and Screws, Stove and Tire Bolts Rivets, &c.
Brade's Brick Trowels.

O. Ames & Son's Shovels, Spades and Scoops.
E. W. Gilmore & Co.'s Strap and T Hinges.
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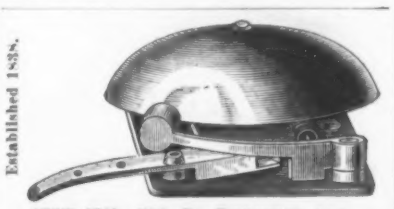

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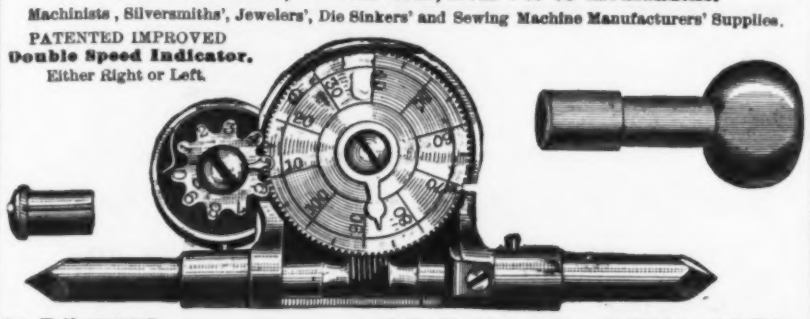

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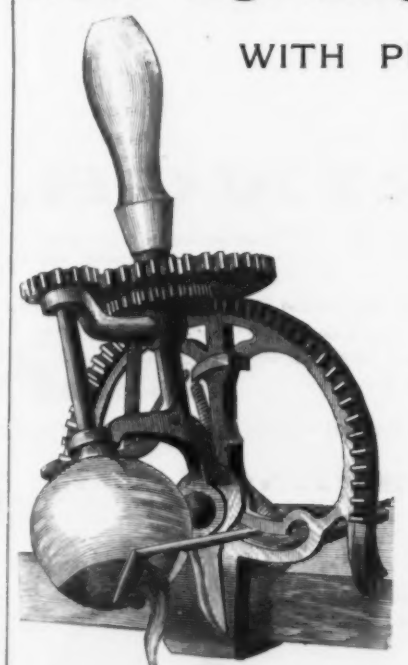
WITH PUSH-OFF,



IS THE FASTEST MACHINE in existence, and will pare rough and irregular shaped apples better than any other machine ever made. Parings fall entirely free from the machine.

♦

It is simple, substantial and durable, and cheaper than other machines that are advertised to do the same work.

♦

We manufacture the *Eureka Parer, Corer and Slicer* (for Hand or Power), also the *White Mountain Parer, Corer and Slicer.*

♦

Illustrated Catalogue sent if applied for.

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PATENT COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This Wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

No. 3 PATENT PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, this easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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This Wrench can be Furnished with Long Nut or Sleeve.

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Screw

Wrenches.

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December, 26, 1871.

December, 23, 1875.

August 1, 1876.

The back strain when the wrench is used is borne by the bar—not by the handle.

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None genuine unless stamped

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this year was £104,398,088, against £115,621,173 in the first half of last year. The total quantity of iron and steel exported last month was 298,519 tons, valued at £2,026,470, compared with 326,869 tons and £2,043,656 in June, 1884. The decrease was almost exclusively in pig iron; indeed, most of the other items, except rails, show a respectable increase. In tin plates there was an increase of about 35 per cent., almost entirely with the United States. There were slight decreases in hardware and cutlery, steam engines and other kinds of machinery and millwork.

TO THE UNITED STATES

the chief exports of the month were as given below:

Articles.	Month of June, 1885.	Month of June, 1884.	Month of May, 1885.
Alkali, cwt.	199,473	186,888	290,196
Hardware and cutlery, £	21,587	26,559	16,733
Iron—Pig, tons	10,374	14,271	27,806
Bar, angle, rod, &c., tons	285	286	1,657
Railroad, all, tons	.....	2,006	9,500
Hoops, sheets, plates, &c., tons	5,878	2,209	861
Tin plates, tons	18,181	12,572	23,645
Cast or wrought, tons	131	143	127
Old, tons	926	2,083	104
Steel, unwrought, tons	860	1,133	1,356
Lead, all sorts, tons	52	1	51
Steam engines, £	1,971	1,686	2,067
Other machinery, &c., £	19,807	29,283	14,645
Tin, unwrought, cwt.	42	144	555
Special return—Steel rails, tons	.....	2,004	1,842

The Manufacture of Screws in Rhode Island.

In a recent issue we reproduced from the columns of the Providence *Journal* an article on the history of the manufacture of screws in Rhode Island. A second article deals with the process of manufacture used in the works of the American Screw Company:

The Eagle Mill is devoted to the manufacture of what is technically called "wood screws." In the yard connecced with this mill are landed the rods, in coils, from which the screws are to be manufactured. The larger portion of these rods are imported from Sweden, Germany and England. The first room into which the reader is to be conducted is the "pickling-room." Here the rod is "pickled" for the purpose of removing the flinty scale on the outside. After being annealed in furnaces the wire is subjected to the pointing process, the purpose of which is to reduce the end of the rod to enter the draw-plate. The wire is taken into the drawing-room, where it is drawn in the different sizes needed for the great variety of screws. The machinery for the different processes is the result of the skill of many inventors, who have produced a system of machines, mostly automatic, and beautiful in operation. By the automatic wire blocks used, if anything happens to the wire while going through the process the whole apparatus stops. If it did not stop the wire would break. By a machine, whose action is accurate and fascinating, the rod is cut into the sizes of the screws desired, and the head put on almost at the same instant. The metal, in going through this process, necessarily becomes very oily. These "blanks," for such they are called at this stage of their manufacture, are put into what are called "rattlers," revolving boxes, hexagonal in shape, filled with sawdust, where they are cleansed of the oil that covers them, the oil being absorbed by the sawdust. The blanks are ready to have their heads "shaved," which consists in cutting the heads perfectly round. The blanks are put into a hopper, and by an automatic feeder they are let down into a trough, from which they are picked by a metal finger and put into a spindle. The heads are then shaved, and by a revolving spindle the blank is taken to the small saw which cuts the slot in the head; the blank is then revolved back again and shaved again, to get rid of the "burr" or the rough edge left by the tool in cutting the slot. The blanks are then fired out of the machine absolutely perfect. The machine is an automatic, but very complicated, one; every part of it, however, does its work effectively. The blanks, after being shaved and slotted, are placed in another machine and threaded, when the screw is complete.

It is interesting to note that while the manufacture of wood screws probably originated in Westphalia, Germany, and was subsequently carried on in Eastern France and England, before its introduction into this country, American inventors have supplied the machinery that is now universally employed. The popular feeling that the gimlet-point screw was a modern invention is erroneous. The American Screw Company have in their possession sample cards of French screws pointed, though not as perfectly made as at present, which were brought from France early in the present century, and from an old piano now at Northampton, made about the year 1750, screws have been taken showing the same feature. Patents have been issued on gimlet-pointed screws, but they covered only a peculiar form of point. The Bay State Mill, on the north side of Stevens street, is used for the manufacture of nuts, special screws of various kinds, machine screws, bolts, rivets, &c. Here are the tapping and threading machines, the processes being generally similar to those described above, the polishing-room, where beautiful polished screws are turned out, the heads being ground off even by a patent of the company and smoothed, after which they are polished with pieces of steel. In this polishing-room, some 50 girls are employed. There is also the hot-heading room, where nuts are forged to be used on tire bolts. Here are the revolving furnaces for heating bolt screw-blanks preparatory to making the heads. There is also the room where the burrs are cut. Connected with this building are also the blacksmith's shop, the toolroom, the room for the die-makers, the saw-makers, any one of which is a good machine shop, and the supply-room. The box shop is an interesting part of the establishment. Here a number of girls are employed in the cutting, creasing and folding of box cardboard. Here are produced all the boxes in which the company's products are packed before being shipped. Connected with this building are the nickel-plating works, the pattern shop, storehouse, drafting-rooms, packing and carpenter shops. In the packing and shipping room all the products of the Bay State Mill are assorted, counted and packed. Connected with the Eagle Mill is a packing-room also, where the wood screws are assorted and packed. All the goods are carefully inspected, grossed and put into boxes. Each mill has its superintendent and one man who studies the machinery and suggests improvements. There are also numerous draftsmen, pattern-makers and machine workers. The New England Mill, situated in Eddy street, is employed in making only common wood screws.

As compared with the company's productive capacity at its origin, the present capacity is 75 to 1. Their production of common wood screws alone is 2½ times as great as it was 20 years ago, and the variety of goods they now make is 10 times as great. Each workman averages three times the product of 20 years ago, by reason of the improvement in machinery and the methods of work. At the mills in Providence are employed about 1000 hands, a large proportion being girls; at the mill in Canada there are in the neighborhood of 100 persons employed. The establishment works up nearly 40 tons of iron per day, which, as above stated, is mostly imported from Sweden, Germany and England. A better article can be made from this iron, for it is more reliable, although more difficult to work, than American iron. Our country, however, has the best of material for this purpose, if it were put into proper shape, at a proper cost. The company at present are doing scarcely any exporting business, on account of the high cost of the raw material and the lack of commercial intercourse. They had orders recently from Australia, but found it impossible to fill them. The Canada market is supplied from the Canada mill. The productive capacity of wood screws is from 40,000 to 45,000 gross per day. Twenty years ago the concern never made over 17,000 gross per day. The company design and build all their own machinery. Everything, except the iron rods and occasionally a machine, is manufactured here. The American Screw Company are the only screw makers that draws their own wire. Their machinery was never in better, if in equal, condition.

All the screw machinery now used is modeled upon the principles that this company have developed in their own way. As the variety of product has increased, as before mentioned, tenfold in 20 years, there has been a constant necessity for new inventions and new lines of machinery, so that their corps of draftsmen, pattern-makers and machine builders is as much a part of their working force as that employed in running the machinery after it is finished. The investment of capital in new machinery is constant, and the company feel that to maintain their proper position as manufacturers this must continue indefinitely. A great revolution in the manufacture of iron is in progress, affording greater variety and better quality than in former years. Each country and each district in that country produces its own special material adapted to different products, and instead of using as formerly one kind of iron for all purposes, as well as one form of machine, the machinery has not only been greatly diversified, but the company find it necessary to give a great deal of attention to the progress of iron-making in this country, and through their foreign agent as to the progress in iron-making abroad, so that the best material may be obtained for the particular result to be accomplished. Not less than 20 varieties of iron have to be kept in stock, and, with the various sizes required of each, the stock of iron is necessarily a heavy one. Whereas, formerly screw-makers as well as other consumers of iron worked by the rule of thumb, it is essential in obtaining the results that the company now secure to know the chemical constituents of the material as well as to have a full knowledge of its physical structure.

By way of illustration, steel, that for most purposes is so valuable, and more desirable than iron, has failed entirely to make a good screw. Its chemical constitution may be all right, but its physical structure is not suited for screw-making, and all attempts in this country, as well as abroad, to remedy the defect have failed. It is the policy of the company to concentrate in one place, where they may have the advantage of special machinery and attendance, each variety of their product, and to bring all their manufacturing under the personal supervision of the principal management. To that end they have from time to time abandoned different screw factories which have come into their hands by purchase, and the increased economy attained thereby has fully warranted the policy. Besides the company's works in Providence and in Canada, they have an abandoned screw mill in Hartford and one in East Boston, which are rented for other industries and stand on the books, at assessor's valuation, $100,000. The establishment is now carrying in stock $750,000 worth of merchandise, $250,000 worth of goods in process of manufacture. It also carries in stock and on the way from 3000 to 5000 tons of iron.

The establishment has not depended on its ownership of patents for success, and it owns a great many patents to-day, on which, however, no value is put in its inventories, it not being tangible property. The current impression is erroneous that the concern has held the business for a long time through monopoly by ownership of patents. The most that can be claimed in that direction is that it had the ownership of the so called Harvey patents from 1860 to 1864, which controlled some important features in the machinery now used, and there was little opportunity during that time to get machinery made out of its own establishment. The owner, one of the Harvey heirs, did construct machinery that was free from infringement, as others did shortly after, and following the year 1864 the competition has been practically as severe as at present. The capital stock of the company, as stated in the preceding article, is $3,250,000. Their surplus amounts to $700,000. When the concern paid extraordinary high dividends, their surplus was twice as large as its capital; and after a time this surplus was capitalized, which brought the stock up from $1,000,000 to $3,250,

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SEND FOR PRICE LIST.

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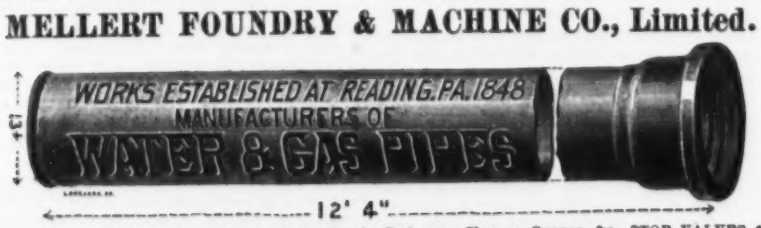

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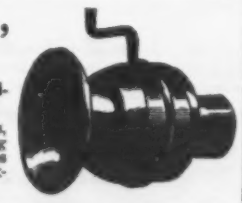

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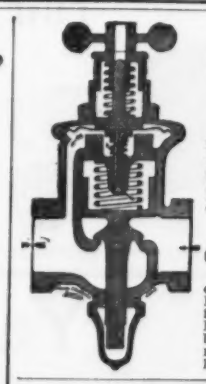

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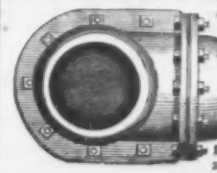

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000. The help of the establishment have worked 10 hours per day since the year 1855. The employees are paid by the piece. Previous to that year they labored 11 and 12 hours, but the president of the company asserts that he has found it more advantageous in every way to employ them 10 hours per day. The help, as before stated, do work generally that requires a higher order of intelligence than that demanded in the majority of manufacturing establishments, and it has been found that when working 11 and 12 hours for a time they will produce more goods, but soon such a long exercise of intelligent labor begins to tell upon them, and they become listless and spiritless in their work, so that in 10 hours they will in the long run produce more and better work, and the expense of running is also less. The president therefore regards 10 hours a day as preferable, and he asserts that if a change in this respect is made it will be a reduction from 10 to 9 hours. There have been no strikes in the mills and no such action is ever anticipated.

Isochromatic Photography.*

BY FRED. E. IVES.

It is well known that the ordinary photographic processes do not reproduce colors in the true proportion of their brightness. Violet and blue photograph too light; green, yellow, orange and red too dark. For a long time it was believed to be impossible to remedy this defect, and even when it became known that bromide of silver could be made more sensitive to yellow and red by staining it with certain dyes the subject received very little attention, because it was also known that the increase of sensitiveness was too slight to be of practical value in commercial photography.

Dr. H. W. Vogel, who was one of the first, though not the first, to devote attention to this subject, announced in 1873 that he had succeeded in making a yellow object photograph lighter than a blue or violet one by using a silver-bromide plate stained with coraline, and exposed through a yellow glass. The plate showed no increased sensitiveness to red, and the experiment, although of considerable scientific interest, did not indicate a practically useful process.

In the spring of 1878 I became interested in this subject, and tried to discover a method of producing plates which should be sensitive to all colors, and capable of reproducing them in the true proportion of their brightness. I commenced by trying nearly all the color sensitizers which had already been suggested, in order to learn which was the best, and then, if possible, why it was the best, as a guide to further research. Chlorophyl was the only thing I tried which was sufficiently sensitive to red to offer any encouragement in that direction; but the solution which I obtained was weak and unstable, and far from being a satisfactory color sensitizer. Hoping to obtain a better solution with which to continue my experiments, I made extracts from many kinds of leaves, and found that a solution from blue-myrtle leaves looked better and kept better than any other, and when it was applied to the silver-bromide plates they became remarkably sensitive, not only to all shades of red, but also to orange, yellow and green. By placing in front of the lens a color screen consisting of a small glass tank containing a weak solution of bichromate of potash, to cut off part of the blue and violet light, I obtained with these chlorophyl plates the first photographs in which all colors were reproduced in the true proportions of their brightness. But my chief desire at that time was to realize a method of producing from any object in colors a set of three negatives, in one of which the shadows should represent the blue of the original, in another the yellow, and in another the red, in such a manner that transparent pigment prints from these negatives—blue, yellow and red—would, when superimposed on a white surface, represent not only the lights and shadows, but also the colors, of the object. This had already been attempted by others, who failed because their plates were not sufficiently sensitive to red and yellow.

Having succeeded perfectly in my undertakings, I published my discovery in 1879,† explaining how to prepare and use the chlorophyl plates, in connection with the yellow screen, for the purpose of securing correct photographs of colored objects.‡

So far as I know, nobody tried the process. Nearly five years later Dr. Vogel announced that after 11 years of investigation he had at last realized a successful process of this character, and that this new process of his was the "solution of a problem that had long been encompassed with difficulty." This publication attracted a great deal of attention, and gave me occasion to again call attention to my process,¶ and point out that it was not only the first practical solution of this problem, but the only truly isochromatic process ever discovered. Dr. Vogel's new process was not only no better in any respect, but the plates were insensitive to scarlet and ruby red, and therefore would not photograph all colors in the true proportion of their brightness.

My method consists in treating ordinary collodio-bromide emulsion plates with blue-myrtle chlorophyl solution, exposing them through the yellow screen, and then developing them in the usual manner. The emulsion which I have employed is made with an excess of nitrate of silver, which is afterward neutralized by the addition of chloride of cobalt; it is known as Newton's emulsion. I now prepare the chlorophyl from fresh blue-myrtle leaves, by cutting them up fine, covering with pure alcohol and heating moderately hot; the leaves are left in the solution, and some zinc powder is added, which helps to keep the chlorophyl from spoiling. I have a bottle of this solution which was prepared about six months ago, and now appears to be as good as when first made.* A glass plate is flowed with the emulsion, and as soon as it has set, the chlorophyl solution is applied for a few seconds, after which the plate is washed in pure water until smooth, when it is ready for exposure.

My color screen consists of a small plate-glass tank, having a space of $\frac{1}{16}$ inch between the glass, filled with a solution of bichromate of potash about 1 grain strong. I place the tank in front of the lens, in contact with the lens mount. The advantage of this tank and solution is that it can be more easily obtained than yellow plate glass, and the color can be adjusted to meet any requirement. The plates require about three times as much exposure through the yellow screen as without it, and may be developed with the ordinary alkaline pyro-developer.

In order to illustrate the value of this process, I made two photographs of a highly-colored chromo-lithograph representing a lady with a bright scarlet hat and purple feather, a yellow-brown cape and a dark-blue dress. One, by the ordinary process, represents the blue as lighter than the yellow-brown, the bright scarlet hat as black, and the purple feather as nearly white. The other, by the chlorophyl process, reproduces all colors in nearly the true proportion of their brightness, but with a slight exaggeration of contrast, produced purposely by using a too-strong color solution in the small tank.

I also made two landscape photographs, one by the ordinary process and the other by the chlorophyl process, exposing them simultaneously. In the ordinary photograph distant hills are lost through over-exposure, yet the foreground seems under-exposed, and yellow straw-stacks and bright autumn leaves appear black. In the chlorophyl photograph the distant hills are not over-exposed, nor is the foreground under-exposed; the yellow straw-stacks appear nearly white, and bright autumn leaves contrast strongly with the dark green about them.

To test the relative color sensitiveness of plain emulsion plates, plates stained with eosine, and plates stained with the blue-myrtle chlorophyl, I exposed one of each kind through the same yellow screen, giving each 3 minutes exposure on the same piece of copy, which was the chromo-lithograph already described. The plain emulsion plates showed only the high lights of the picture after prolonged development. The eosine plate was under-exposed, but brought up everything fairly well except the scarlet hat, which came up like black. The chlorophyl plate was over-exposed, brought out all colors better than the eosine plate, and gave full value to the bright scarlet of the hat, the detail in which was beautifully rendered.

Dr. Vogel advanced the theory that silver bromide is insensitive to yellow and red, because it reflects or transmits those colors; and that it becomes sensitive when stained, because of the optical properties of the dyes. He afterward admitted that only such dyes as are capable of entering into chemical combination with the silver bromide proved capable of increasing its sensitiveness to color, but he held to the theory that the optical properties of the compound were the cause of its color sensitiveness.

I have shown that the color sensitiveness can be produced by treatment with an organic compound which has none of the optical properties characteristic of dyes; and that chlorophyl, which absorbs only red light, greatly increases the sensitiveness also to yellow and green. There is, therefore, good reason to doubt if the color sensitiveness is ever due to the optical properties of the dye or combination.

Attempts have been made to produce isochromatic gelatine dry plates which, while many times more sensitive to white light than my chlorophyl plates, shall also show the same relative color sensitiveness. Such plates would be very valuable but for one fact—it would be necessary to prepare and develop them in almost total darkness. Gelatine-bromide dry plates extremely sensitive to yellow, but comparatively insensitive to red, might be used to advantage in portrait and instantaneous photography, because they could be safely prepared and developed in red light; but when truly isochromatic photographs are required, the time of exposure must be regulated to suit the degree of sensitiveness to red, which cannot safely be made greater than I have realized with my chlorophyl process.

The Secretary of the Treasury, on Friday, issued a circular to collectors and other officers of customs providing that imported merchandise in bond or duty paid, and products and manufactures of the United States, may, with the consent of the proper authorities of the British Provinces, be transported from one port in the United States to another port therein over the territory of such Provinces, by such routes and under such rules, regulations and conditions as the Secretary of the Treasury may prescribe. So much of Circular No. 102 of the Department, dated July 2, as rescinded Article 844 of the customs regulations of 1884 is revoked, and that article is amended in such manner as to restrict the transportation therein referred to American vessels.

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* I originally recommended chlorophyl extracted from dried leaves, because I had not yet learned how to preserve the solution for more than a few weeks, and at some seasons it would be difficult, if not impossible, to obtain fresh leaves. The tea organifier which I recommended is also a color sensitizer, and when it is used in connection with the chlorophyl from dried leaves the plates are as sensitive to red as can be safely prepared and developed in the light of an ordinary photographic "dark-room." Plates prepared with chlorophyl from fresh leaves do not require treatment with the tea organifier to secure this degree of sensitiveness. Recently I have used the tea organifier and some other sensitizers in connection with the solution from fresh myrtle leaves, and in this way have produced plates having such an exalted color sensitiveness as to be unmanageable in ordinary "dark-room" light. Possibly such plates might be prepared and developed in total darkness by the aid of suitable mechanical contrivances, but I am not sure that they would work clear even then, because they appear to be sensive to heat as well as to light.

* Read before the Franklin Institute, March 18, 1885.

† Philadelphia *Photographer*, December, 1879, p. 365.

‡ I intended this publication to be a very full and explicit one, and it was sufficiently so to be perfectly understood by most who saw it; but some may think I did not sufficiently emphasize the importance of using the particular kind of chlorophyl which I mentioned. In a brief communication to the editor of the *Photo. News*, in 1883, I described some experiments with eosine as a color sensitizer, and then called attention to the superiority of blue-myrtle chlorophyl for this purpose, stating that I had not been able to secure such results with any other kind of chlorophyl, and that a fresh solution from fresh leaves must be used to secure the greatest possible degree of sensitiveness. See *Photo. News*, November, 1883, p. 747.

¶ *Photo. News*, London, September 5, 1884, p. 566, and "Year Book of Photography" for 1885, p. 111.

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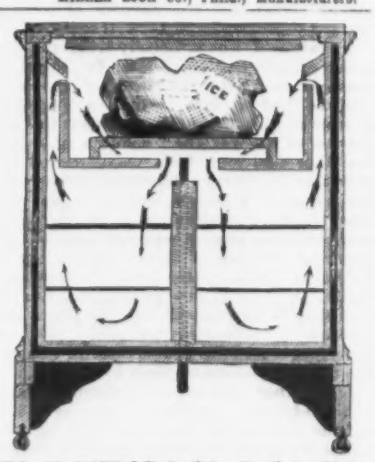

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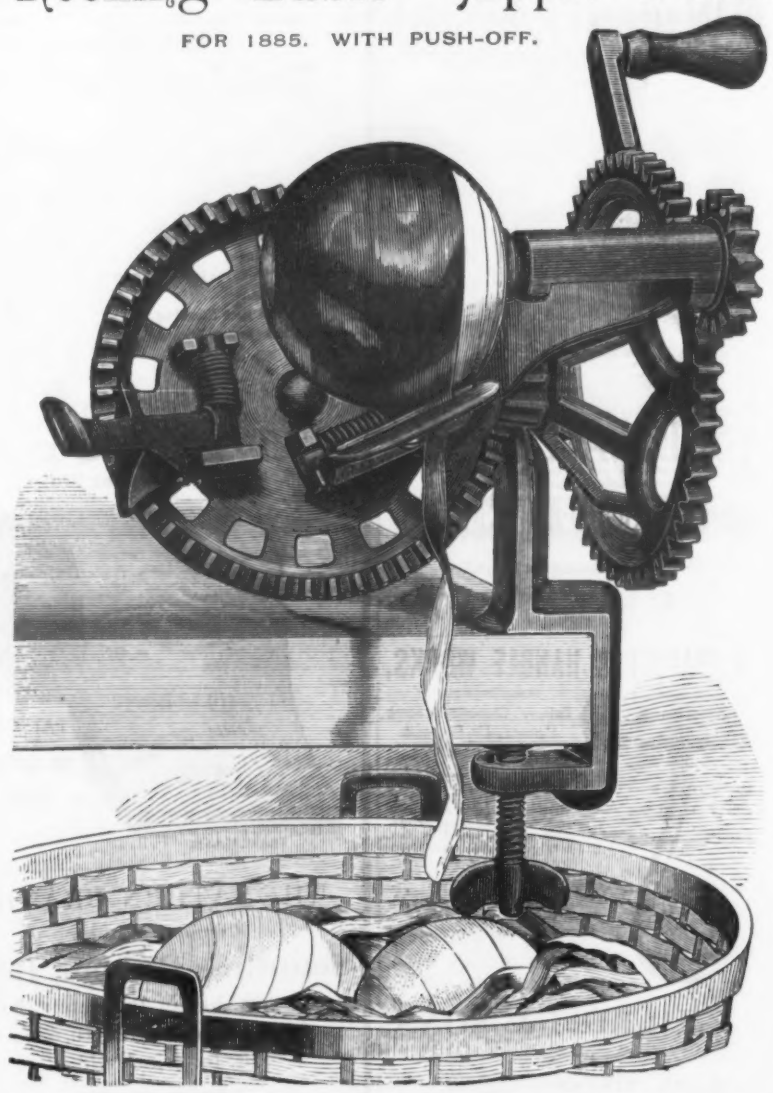

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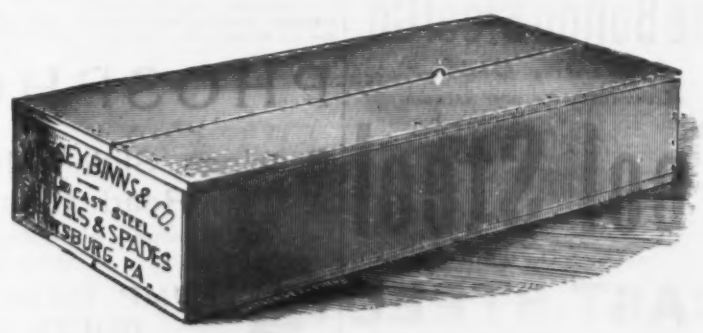

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Six Months' Business.

The record in commercial circles during the first six months of the current year gives very few signs favoring the near approach of speculative activity and high prices. The conditions are much more favorable in that the commercial evils, "inflated credit" and excessive buying by interior traders, have been very materially checked. For more than a year past sales of staple articles in almost all lines have been to meet near-by requirements only. Again, it is to be noted that the weekly record of commercial failures, while heavy, is made up principally of small traders, "whose capital is $5000 and under." It should be added that of this 90 per cent. three fourths have a capital of $2000 and under, of whom a large share have $1000 or less employed in business. But it has to be admitted that the high mortality rate among small traders is hardly abating as compared with like records for the years just preceding the period of speculative activity.

The results of the past six months' business have been somewhat larger as to volume than expected. As to profits, however, the reverse has been true. It will be recalled that at the beginning of the year *Bradstreet's* published in tabular form an elaborate comparison of prices of staple articles at various dates from 1877 to 1884, inclusive, by which it was shown that, so far as the price gauge of the depression of trade was concerned, the "boom" in prices from 1879 to 1882 had been in nearly all respects undone. Even then there were predictions of an early advance, based solely on the extent of the price shrinkage shown, and last year was to witness it. Again was there disappointment, and at last has it been perceived that in addition to a shrinkage of prices there is a further extension of the weeding out process among the excess distributors, makers and producers. If not this, then there must be corresponding revival in the general demand for products. The latter has not shown itself yet in any pronounced way, and the most optimistically inclined appear to have little to base their views on except the general feeling that "it is about time" for an improvement or soon will be. At very few points have there been sales of dry goods within six months equal to those during the first half of 1884. Boston claims to be a shining exception. The trade observers who have seen fit to find evidence of a slow but general advance in prices of staples of late will find the following exhibit of interest. It compares prices of leading breadstuffs, metals, fabrics, &c., on January 2, on April 1 and on July 1, 1885:

	Friday, January 2.	Wednesday, April 1.	Wednesday, July 1.	Increase or decrease.	Inc. or dec. per cent.
No. 2 red wheat, bushel	88c.	90c.	99¾c.	Inc. 11¾c.	Inc. 13
No. 2 mixed corn, bushel	54¾c.	48⅝c.	53½c.	Dec. 1¼c.	Dec. 2
Family flour, barrel	$4.65	$4.60	$4.60	Dec. 5c.	Dec. 1
Lard, refined, pound	7.40c.	7.35c.	6.90c.	Dec. ½c.	Dec. 6
Pork, spot mess, barrel	$12.75	$13.00	$11.00	Dec. $1.75	Dec. 13
Butter, choice creamery, lb.	29 @ 31c.	25 @ 27c.	18 @ 20c.	Dec. 11c.	Dec. 36
Cheese, full creamery, pound	12¼ @ 13c.	11 @ 11¾c.	7¼ @ 7¾c.	Dec. 5¼c.	Dec. 42
Sugar, fair refined, pound	4 11-16c.	4⅝c.	5⅜c.	Inc. 11-16c.	Inc. 11½
Coffee, Rio, pound	9¾c.	8⅝c.	8½c.	Dec. 1¼c.	Dec. 12.8
No. 1 anthracite pig iron, ton	$18.00	$18.00	$18.00		
Bar iron, refined, pound	1.65c.	1 65c.	1.6c.	Dec. 5-100c.	Dec. 3
Steel rails, ton	$27.00	$26.60	$27.00		
Copper, lake, pound	11¼c.	10¼c.	11¼c.	Dec. ¼c.	Dec. 2
Tin, Straits, pound	16⅜c.	17.1c.	21⅜c.	Inc. 5c.	Inc. 30
Lead, common domestic, lb.	3.55c.	3.7c.	3.85c.	Inc. 30-100c.	Inc. 8
Cotton, middling uplands, lb.	11¼c.	11 3-16c.	10½c.	Dec. ⅝c.	Dec. 5
Wool, Ohio and Pennsylvania, pound	31 @ 33c.	30 @ 31c.	30 @ 31c.	Dec. 1 @ 2c.	Dec. 3
Print cloths, 64s, yard	3 3-16c.	3 1-16 + ⅛ of 1 %	3c.	Dec. 3-16c.	Dec. 6
Petroleum, certificates, barrel	75c.	80¾c.	92c.	Inc. 17c.	Inc. 22

In the above exhibit are presented 19 staple products, which, with the exception of petroleum, may be classified as food products, metals and fabric staples. Six months ago they had, with few exceptions, touched prices as low or lower than in the previous period of greatest depression (1877–78), and the inference was drawn by many that "the bottom had been reached." It is therefore of special interest to note the record now before us. To begin with, it may be seen that of all the products given all have suffered a further decline in price, with the exception of wheat, tin and petroleum. In explanation of the course of prices of the latter it will be recalled that there is a prospective shortage of 150,000,000 bushels of wheat as compared with last year, yet quotations are but a cent or two higher than one year ago, even with English and French home supplies prospectively short. The production of tin has been arbitrarily checked in Wales by the leading producers for foreign markets; stocks here are light, and a clique of speculators, quick to take advantage of the situation, have in this way "put prices up" by main force, as it were. The advance in crude petroleum is perhaps the more natural. Consumption is in excess of production, and the home and export demand is at the full. It has long been depressed and held at low figures. The advance is more nearly warranted than that of either of the others noted, so far as the pressure of the existing situation is concerned.

Among the articles prices of which have declined, those of butter and cheese are most conspicuous as having suffered a depression respectively of 36 and 42 per cent. It will be recalled that among the products suffering the least depression in prices in 1884, as compared with immediately preceding years, butter and cheese were conspicuous. This was especially noteworthy, and was by some held to reflect the exceptionally favorable character of the dairy-farming business when other lines were suffering.

Prices of butter from January to the end of April were comparatively lower for the season of the year than for several preceding years. Since May, which is the opening of the season for new grass butter, prices have been exceptionally low, partly owing to the large make and a disposition to sell in consequence of the decision pronouncing the Oleomargarine bill unconstitutional. Cheese has suffered from Canadian competition and a decreased home demand, and prices from January to the end of April were lower than the previous year. Since May the export demand has been smaller than for several years, and prices have been at times below the cost of production. Foreign competition in the English market is principally responsible for the low prices, because receipts so far are behind last year's.

For sugar the year opened with fair refining at lowest quotation ever seen, and continued for some time comparatively low. At the latter part of April rumors of a short beet-root crop were circulated, and in May a speculative movement, based upon the short-crop theory, originated in London, and prices were put up 70 per cent. This market, however, did not respond to the highest quotations. Large supplies of cane sugar ultimately influenced prices, and they gradually tended toward a lower basis. Coffee did not show very great fluctuation in the early part of the year, but in April large supplies at shipping ports and quiet demand brought prices down, until May saw lowest prices for the crop year. An improved home demand and better foreign market developed later, and influenced prices upward, but not more than ⅝ cent a pound.

All varieties of iron and steel continue dull and prices are really lower. The late unprofitable prices for copper have resulted in the shutting down of many mines. This fact, backed by a slight revival in the demand, has of late induced active producers to advance prices slightly. Lead is somewhat higher, owing to a general scarcity in some leading markets. At London the prevalence of cholera in Spain and the alleged decline in production there is urged as one cause of firmness. Yet, with the exception of tin, all these metals closed the half-year lower than they began it. The decline in cotton and wool staple prices has been a matter of common report of late months. The prospectively heavy new cotton crop has been an important factor in the one instance; the decline in demand for wool, owing to reduced production and the slowness of woolen goods manufacturers to stock up, has operated to the disadvantage of quotations of the other. The later activity in the wool markets has not thus far resulted in an appreciable advance in prices. The tendency of production of print cloths to outstrip the current demand and the prevalence of hand-to-mouth buying have operated in the long run to reduce the selling price.

Now, what is the present situation?

The demand for breadstuffs is not sufficient to materially advance prices, notwithstanding the heavy reported shortage. The speculative interest in these markets is only moderate, so disappointed have bull operators become at the failure of short-crop quotations to respond to the outlook. Wheat is dull and heavy; corn likewise, with prospects for a good crop, and wheat-flour prices follow in the wake of those of wheat. The volume of transactions is sensibly diminished. Hog products and provisions are afflicted with evidences of "plenty," and with only a moderate demand for consumption prices are low and heavy. The past six months were marked by the greatest dullness ever experienced in the iron and steel trades. Production and sales are materially lighter than in January last. Textile fabrics do not find a bright prospect before them. One of the leading cotton mills at Lawrence, Mass., has found it necessary to cut its operatives' wages one-third within a week past. Production of cotton goods is being restricted at that and at other prominent producing centers. The midsummer season is particularly depressing, furthermore, by reason of a prolonged stretch of great heat. The commercial and industrial world is doing as little as possible, yet is doing all that is really demanded at the present time.

Every month that the season of depression is prolonged we are, of course, nearer to the ultimate revival in trade. Some of the economies which must precede such a revival have appeared, as noticed above.—*Bradstreet's.*

The plans for the new cruisers submitted to the Secretary of the Navy for approval numbered about 50, but only nine were for complete vessels. Naval Constructor S. H. Pook has one for a 5000-ton cruiser, like that which he offered to the last Naval Advisory Board. W. A. Lillie, of Brooklyn, also proposes a 5000-ton cruiser, 324 feet long, 58½ beam and 33 in depth, with a speed of 17 knots. Naval Constructor Philip Hichborn proposes a cruiser of 4487 tons displacement, to cost $1,000,000, and James Purdie one of 4600 tons, to cost $1,100,000. The latter is to have engines of 7500 indicated horsepower, and to carry 16 guns, four being 8-inch breech-loaders in protected barbette and the remainder in broadside. Mr. Knight, of New York, offers a cruiser of 4700 tons displacement, 356 feet long, 45 broad and with 20 feet draft aft. The Union Iron Works, of San Francisco, propose a cruiser of 4750 tons, with a length of 356 feet, a breadth of 45 and a draft forward of 20 feet, and aft of 22½.

Recently there was shipped, by the Red Star Line, to Antwerp the machinery for a Loiseau artificial fuel plant. This machinery was built by the J. P. Morris Company and the Eagle Iron Works, of Philadelphia, and shows how great was the confidence of the inventor in the excellence of American workmanship. Mr. E. F. Loiseau goes to Antwerp to erect the plant and to introduce his system at other works. He will return to this country in December.

The alliance of railroads in the State of New York by which trunk-line rivalries are to be done away with will bring into new prominence the value of the Erie Canal as a means for the cheap transportation of the coarser classes of merchandise, such as grain, coal, ore and pig iron.

The Iron Age

AND

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The Production of Iron and Steel During the First Six Months.

The American Iron and Steel Association have just published, in a supplement to the *Bulletin*, statistics of the production of pig iron and of Bessemer and open-hearth steel for the first half of 1885. This shows that, so far as the former commodity is concerned, the falling off in the output has not been as large as had been expected and hoped. For the first and second half of 1884 and the first half of 1885 the figures are respectively 2,267,021, 2,322,592 and 2,150,816 net tons. According to the fuel used, the return is as follows:

Total Production of Pig Iron.—Tons of 2000 Pounds.

Fuel used.	First half of 1884.	Second half of 1884.	First half of 1885.
Anthracite	831,721	754,732	703,217
Charcoal	205,371	253,047	186,291
Bituminous	1,229,929	1,314,813	1,261,308
Total	2,267,021	2,322,592	2,150,816

It will be observed that, as compared with the second half of the year 1884, there was a decline in the production of iron made by the three fuels, while a comparison of the corresponding period last year shows a slight increase in pig iron made with bituminous coal or coke. Charcoal has dropped off very suddenly, Michigan accounting for nearly 27,000 tons, and Missouri for about 10,000 tons of the decline. The record of the leading States in the manufacture of pig iron stands as follows:

Production of Pig Iron by States—Tons of 2000 Pounds.

	First half of 1884.	Second half of 1884.	First half of 1885.
New York	140,578	98,908	75,191
New Jersey	42,116	40,819	28,014
Pennsylvania	1,183,316	1,202,086	1,167,855
Virginia	80,526	76,957	74,627
Alabama	88,679	100,985	118,186
West Virginia	29,091	26,140	35,965
Kentucky	17,354	27,628	16,768
Tennessee	68,280	66,317	79,144
Ohio	275,987	291,126	273,060
Illinois	152,750	174,818	141,476
Michigan	79,545	93,289	66,557
Wisconsin	23,983	28,832	17,867
Missouri	17,622	42,421	18,505

The decline in the product of New York and New Jersey is almost entirely due to a falling off in the make of anthracite pig iron. We give below the figures for these States and for the districts in Pennsylvania:

Production of Anthracite Pig Iron.—Tons of 2000 Pounds.

States.	First half of 1884.	Second half of 1884.	First half of 1885.
New York	129,256	86,742	67,226
New Jersey	42,116	40,819	28,014
Pennsylvania:			
Lehigh Valley	229,379	202,488	223,656
Schuylkill Valley	131,591	146,987	104,126
Upper Susquehanna	79,367	68,985	62,705
Lower Susquehanna	210,796	208,643	217,490
Maryland	9,216	68	....
Total	831,721	754,732	703,217

The Schuylkill Valley has lost heavily during the current year, though not in so striking a manner as the New York and New Jersey furnaces.

The output of the more prominent producing States of pig iron made with bituminous coal or coke as a fuel is as follows for the periods under review:

Production of Bituminous Coal and Coke Pig Iron.—Net Tons.

	First half of 1884.	Second half of 1884.	First half of 1885.
Pennsylvania	522,582	561,429	555,798
Virginia	76,067	66,587	71,731
Alabama	60,509	69,707	86,882
West Virginia	29,091	26,140	35,965
Kentucky	12,954	24,216	15,668
Tennessee	59,684	56,107	65,734
Ohio	265,222	277,011	262,999
Illinois	152,750	174,818	141,476

Pennsylvania and Ohio, it will be observed, are holding their own very well. Illinois, which has been so rapid a gainer in late years, has been falling off a little. An interesting point at the present juncture is to watch the returns in the aggregate of the make in the South. Grouping together Alabama, Virginia, Tennessee, Kentucky, Georgia, North Carolina, West Virginia and Maryland, we reach the following figures for the make of pig in the manufacture of which bituminous coal or coke was used: 257,455 net tons for the first half of 1884, 259,582 tons for the second half of the same year and 285,602 net tons for the first half of the current year. In this notable increase this year Alabama takes the leading part, West Virginia and Tennessee following.

Taken in conjunction with these figures the statement of stocks submitted is valuable and significant. Arranged according to fuel used, the stocks at different periods under discussion were:

Stocks According to the Fuel Used.

	Dec. 31, 1883.	Dec. 31, 1884.	June 30, 1885.
Bituminous	171,802	191,845	306,251
Anthracite	178,020	178,993	138,595
Charcoal	183,978	222,162	248,070
Total	533,800	593,000	692,916

The most striking feature is the exceedingly heavy stock of charcoal iron, which shows an increase in the face of the heavy decline in the make. It amounts to more than the average production of the three periods of six months, which is roughly 215,000 net tons. This means 57.7 per cent. of a year's product at that rate, while in the case of anthracite pig the stock is only 9.28 per cent. of the annual make, on the basis of the average product of the past 18 months; and in the case of iron produced with bituminous coal or coke only 8.28 per cent. on the same basis, in spite of the fact that there has been a large increase during the last six months. Relatively and absolutely the position of the anthracite pig producers is a very sound one, the stocks being low, and, to judge from the following figures, well distributed:

Stocks of Anthracite Pig.

	Dec. 31, 1883.	Dec. 31, 1884.	June 30, 1885.
New York	48,694	51,921	30,805
New Jersey	25,615	11,809	10,200
Pennsylvania:			
Lehigh Valley	50,600	61,305	42,344
Schuylkill Valley	25,448	29,696	29,314
Upper Susquehanna	8,539	12,216	10,696
Lower Susquehanna	14,324	10,643	14,236
Maryland	4,500	1,343	1,000

Comparatively, the New York and New Jersey furnaces carry larger quantities, while the proportion of make to stock is very high in the case of the Lower Susquehanna Valley furnaces.

A study of the stocks of bituminous coal and coke pig iron, which is appended, is of considerable interest:

Stocks of Unsold Bituminous Coal and Coke Pig Iron.

	Dec. 31, 1883.	Dec. 31, 1884.	June 30, 1885.
Pennsylvania	85,257	98,632	145,951
Maryland	....	560	800
Virginia	14,467	19,650	28,827
Alabama and Georgia	4,500	11,786	14,908
West Virginia	1,900	1,168	5,860
Kentucky	1,300	4,900	5,150
Tennessee	11,986	9,792	14,608
Ohio	47,915	33,597	76,111
Michigan and Indiana	727	....	....
Illinois	....	4,200	5,906
Missouri	3,750	13,260	13,630
Total	171,802	191,845	306,251

The principal part of the increase, indicating as it does that a curtailment is necessary, is due to the labor troubles, which have evidently led to an accumulation that may become dangerous. In Pennsylvania, where the increase is most striking, Alleghany County had stocks aggregating 52,356 net tons on June 30, as against 15,780 tons on December 31, 1884. Since then some of the furnaces have blown out. In Ohio it appears to be chiefly the Mahoning Valley which is responsible for the accumulation, the figures in the beginning of the year and at the end of last month standing 16,977 and 47,220 net tons respectively. The two districts mentioned are together responsible for 66,819 tons out of the total increase of 114,406 tons. The South, including the States mentioned before, shows an increase in the same time from 47,156 to 64,653 tons, in spite of vigorous selling.

The data published by the American Iron and Steel Association in regard to the production of Bessemer steel rails, of Bessemer steel ingots and of open-hearth steel ingots are interesting from more than one point of view. They are as follows:

Production of Bessemer Steel Rails.

	First half of 1884, net tons.	Second half of 1884, net tons.	First half of 1885, net tons.
Pennsylvania	402,412	360,781	326,093
Illinois	155,484	134,701	115,073
Other States	35,444	27,769	11,280
Total Bessemer steel rails	593,370	523,251	452,446

Production of Bessemer Steel Ingots.

	First half of 1884, net tons.	Second half of 1884, net tons.	First half of 1885, net tons.
Pennsylvania	553,817	477,667	516,120
Illinois	168,971	170,097	136,979
Other States	94,157	75,886	110,245
Total Bessemer steel ingots	816,945	723,650	763,344

Production of Open-Hearth Steel Ingots.

	First half of 1884, net tons.	Second half of 1884, net tons.	First half of 1885, net tons.
New England, New York and New Jersey	8,862	7,838	12,255
Pennsylvania	40,245	41,256	39,969
Southern and Western States	22,637	10,779	16,614
Total open-hearth steel ingots	71,744	59,873	68,838

There has therefore been another marked falling off in the output of rails, and, to judge from the present indications of the demand for fall and early winter work, no very great improvement need be expected. The most significant fact is, however, the increase during the last six months of 39,694 tons in the make of Bessemer steel ingots in spite of the decline of 70,805 tons in the output of steel rails. Assuming, roughly, the waste in rolling from an ingot to a rail to be 6 per cent., this falling off would represent about 75,000 tons of ingots less used for rail manufacture. It is fair to assume, therefore, that during the first six months of the current year about 115,000 tons represents the increase of steel for other purposes. The rail mills in New York, Ohio, Colorado and Massachusetts did not make many rails, but they, with the Wheeling plants, did turn out a larger quantity of ingots used for other purposes than rails. Pennsylvania, too, made more ingots, but turned out less rails. With the new works now in full operation, old ones resuming, and others in course of construction, the second half of 1885 is likely to witness even greater strength in this movement.

English Exports of Iron and Steel and the American Market.

The report of the British Board of Trade for the first six months of 1885 is at hand. In this are given the exports of iron and steel by countries, with comparative statements for similar periods in 1883 and 1884. From the report we compile the following table, showing the exports to the United States of some of the principal forms of iron and steel for the periods mentioned:

Exports of Iron and Steel and Manufactures of the Same from Great Britain to the United States for the First Six Months of 1883-84-85.

Material.	1883.	1884.	1885.
Pig iron, tons	133,773	90,889	55,628
Bar, angle, bolt and rod, tons	6,084	2,688	1,080
Rails, iron, tons	2,399	....	....
Rails, steel, tons	29,856	10,701	4,843
Hoops, sheets and plates, tons	14,612	7,300	8,523
Tin plates and sheets, tons	160,462	106,108	115,861
Cast and wrought and all other manufactures enumerated, tons	3,070	1,669	742
Old iron, tons	33,063	15,776	4,399
Unwrought steel, tons	22,510	7,022	5,912

We use the tonnage figures instead of values, because the latter indicate chiefly the changes in prices. A reduction in the total values of imports may or may not show a reduction in imports. This is shown only by the amounts imported. An inspection of the table will show that with but one exception, tin plates, there has been a marked decline in the exports of iron and steel to the United States during the last three years. In most cases the reduction from 1883 to 1884 was greater than from 1884 to 1885. Indeed, the exportation of hoops, sheets and plates shows an increase in this latter period, though from 1883 to 1885 the total result has been a decrease. The most marked percentage reduction is in iron rails, which have gone from 2399 tons in 1883 to nothing in 1885. The general reduction, as will be seen from the following table, is from 60 per cent. to 100 per cent. With the exception of pig iron, and hoops, &c., 73 per cent. is the smallest. It is not without significance that the exports of pig iron, the crudest of the forms of iron given in the table, should have been among those which declined the least. This must gladden the hearts of those anxious for duties that will permit of the introduction of raw material, whatever may be its effect on the ore producers and furnacemen. It is also significant that hoops and sheets have been reduced the least. Is this an indication that the adjustment of duties on these is not correct?

In the following table we have given the percentage of the reduction of exports to the United States and the percentage of reduction in total exports from 1883 to 1885:

Material.	Percentage reduction exports to United States, 1883-85.	Percentage reduction exports to all countries, 1883-85.
Pig iron	60	37
Bar, angle, bolt and rod	82	11
Rails, iron	100	59
Rails, steel	90	36
Hoops, sheets and plates	42	9
Tin plates and sheets	Inc. 15	Inc. 17
Cast and wrought and unmanufactured	75	2
Old iron	87	34
Unwrought steel	73	40

This table shows most conclusively that the falling off of English exports of iron to the United States has been proportionately much greater than the falling off of the total export trade in these materials. Some of these differences are remarkable. For example, the total reduction in exports of bar, angle, bolt and rod is but 11 per cent., but the reduction of exports to the United States is 82 per cent.; Cast and wrought, &c., is reduced, on the whole, but 2 per cent.; to the United States, 75 per cent. Indeed, in some cases the falling off in exports to this country is greater than the total falling off to all countries. The reduction in total exports of old iron was 16,255 tons, while to the United States alone the reduction was 18,664 tons. Unwrought steel was reduced 17,516 tons, of which reduction 16,598 were in exports to the United States.

The Nail Situation in the West.

The strike in the nail mills of the West is still in progress, the present week being the ninth of its continuance. All the important mills in that section, with one exception, the Bellaire, are idle, and, so far as we have been able to learn, but two other mills are running, with possibly a third, from which we have been unable to gain definite information. The Bellaire mill has signed the scale and is in operation in accordance with an agreement entered into with its nailers at the time the Amalgamated Association tried to enforce the 20 per cent. advance for cutting steel nails. It was this attempt and the methods used that resulted in the withdrawal of the nailers from the Amalgamated Association and the formation of the Nailers' Union. The points at issue between the Western Nail Association and the Nailers' Union, in addition to a demand for a reduction in wages, which at present prices would be about 19 per cent., includes the abandonment of all reference to steel nails and the cutting of steel at the same rate as iron. In addition, the manufacturers insist upon the adoption of the following:

All breakages of machinery caused by the negligence of any nailer or his feeder or feeders are to be paid for by such nailer.

When nail machines are fed by automatic feeders, prices paid for cutting are to be 25 per cent. less than this scale.

During last week both the nailers' union and the Western Nail Association have held meetings, the former at Wheeling and the latter at Cincinnati. The Western Nail Association simply decided to persist in its demands. The meeting of the nailers' union was more important. In the first place the feeders, who had formed a union of their own, made a demand upon the nailers that 5 per cent. of their number in each mill be taught the nailers' trade yearly. The nailers' union had decided virtually not to allow apprentices unless they were the sons of nailers. After a good deal of discussion and negotiation the nailers' union rejected the demand of the feeders, who had threatened to start the machines unless the demand was granted. It is reported that since the union adjourned the feeders have receded from their position. The union also took action on the subject of repairs as contained in the manufacturers' demand, and decided not to pay for any damage to machines, no matter how caused. They also passed a resolution forbidding nailers to pay for any steel. This was occasioned by the fact that certain nailers prefer to use certain brands of steel that the employers will not furnish.

As to the outcome of the trouble, it is well-nigh impossible to form any opinion. No doubt the starting up of the Bellaire Works has encouraged the nailers. They are aware of the jealousies that exist between certain mills, and the disinclination of some to remain idle and fight for what will benefit those who have decided to run. When works which act independently are of little account their action is not noticed, but with a mill like the Bellaire it is a different matter. It has also been supposed that stocks were getting so low that the mills must resume soon, but this is hardly borne out by the facts. In the first place, nails do not advance as they would were stocks being depleted. Indeed it is questionable if all mills have maintained the prices they started with on June 1st. Certainly there has been little or no advance. Nails have been sold in the West recently at $2, net. In the second place the stock reports for July 1st show nearly 300,000 kegs on hand. The strike began with large stocks, and with the summer demand 300,000 kegs will last some time, especially when it is considered how easily and at what low freight rates nails can be shipped into the West from the East. It is reported that the Eastern mills had something like 400,000 kegs on hand on July 1st. An aggregate of 700,000 kegs is a large stock for this season, and does not indicate the coming of a famine. We imagine that the Western mills can hold out a while longer, unless they start up simply because some one else runs. Jealousy may accomplish what the pressure of a famine would otherwise do.

A point is made by one of the representatives of a large steel works supplying the nail trade with steel slabs, which we believe deserves very careful attention and far more consideration than is generally given to it. He urges that the consumer naturally calls for a milder steel than he needs in reality. Taking the nail trade as an example, manufacturers do not, to the extent they should, make those changes in the design and in the working of their machines which they ought to do, in view of the different character of the raw material. The result is that they demand steel low in carbon, say from 0.10 to 0.15 per cent., because that enables them to work along in the same manner as they have been accustomed to do when cutting iron. That this is not necessary either on account of the machinery or on account of the quality of the product is proven by the fact that another large steel works has for years successfully made steel nails from plate rolled from the steel-rail crop ends which contained twice and three times the quantity of carbon. The nails have been used for years and have met with the appreciation of consumers. The use of mild steel is therefore largely a concession due to the conservatism of manufacturers. When they learn to use a higher carbon raw material, which can be more easily and more cheaply made, something will be gained. Another point which those who have been handling iron hitherto will have to learn is the heating of steel. An oxidizing temperature must be avoided with the greatest care. Thick and uniform beds of fuel on the grate, or in gas reheating furnaces the avoidance of an excess of air, are requirements which cannot be slighted with impunity. The makers of the raw material can do much to prevent disaster, and with them rests largely the burden of educating consumers in the proper treatment of the raw material. But the latter must appreciate the fact that the introduction of steel calls for some modification in construction of plant and in methods.

British Mineral Statistics.

The English inspectors of mines continue the work of compiling statistics of mineral production formerly under the special charge of the Keeper of Mining Records. So far as these figures deal with the coal trade of Great Britain, they do not directly interest producers or consumers in this country. It may simply be stated, in passing, that the output declined from 163,737,327 statute tons in 1883 to 160,757,779 tons in 1884.

The growth of the manufacture of pig iron in the United Kingdom during the past 10 years may be gathered from the following table:

	Pig iron.	Coal used.
1874	5,991,408	15,292,[illegible]
1875	6,365,462	15,645,774
1876	6,555,997	15,598,381
1877	6,608,664	15,342,145
1878	6,381,051	14,112,[illegible]
1879	5,995,337	13,117,411
1880	7,749,233	16,982,629
1881	8,144,449	17,484,930
1882	8,586,680	17,796,[illegible]
1883	8,529,300	17,775,[illegible]
1884	7,811,727	16,077,[illegible]

These figures differ somewhat from those compiled by the British Iron Trade Association, the discrepancy being important only in the case of the year 1884, for which Mr. J. S. Jeans returns 7,528,966 tons, against the 7,811,727 tons reported by the mineral inspectors.

The magnitude of the tin-plate industry is indicated by the following figures. Eighty-nine works, running 326¾ mills, turned out 5,267,774 boxes of tin plates, 1,010,622 boxes of terne plates, and 556,396 boxes of black plates, a total of 6,834,792 boxes, the aggregate weight of which is computed at 349 454 gross tons. The output of tin from the Cornish mines was 9574 tons in 1884, against 9307 tons in 1883.

The data relating to copper are those which most interest the American trade. How England proper has fallen off as a producer of this metal may be gathered from the following table, compiled from Mr. Robert Hunt's book on the "Metalliferous Mines of Great Britain":

Copper Production of Great Britain.

Year.	Copper ore. Statute tons.	Copper. Statute tons.
1856	218,659	14,775
1860	262,696	15,968
1865	198,298	11,888
1870	106,698	7,175
1875	71,528	4,323
1880	52,118	3,662
1881	52,556	3,875
1882	52,907	3,440
1883	46,288	2,630
1884	41,728	3,350

As a producing country England has been simply overwhelmed by younger rivals working richer mines. On the other hand, it has grown steadily as a manipulator of foreign raw materials. The following quantities of copper have been smelted in English works from foreign ores, matte, precipitate, regulus and pyrites, exclusive of bars and fine copper sent:

	Tons.		Tons.
1871	23,650	1878	[illegible]
1872	21,788	1879	[illegible]
1873	26,738	1880	[illegible]
1874	27,894	1881	[illegible]
1875	36,573	1882	[illegible]
1876	42,843	1883	[illegible]
1877	53,582	1884	[illegible]

One of the most important contributors to this quantity is the pyrites trade, the imported material, chiefly Spanish and Portuguese, being roasted for the manufacture of sulphuric acid and then treated for the copper, silver and gold it contains. During the past five years the following quantities were worked:

Year.	Pyrites imported. Tons.	Roasted ore treated. Tons.	Copper extracted. Tons.	Silver extracted. Ounces.	Gold extracted. Ounces.
1880	658,047	415,567	15,000	246,981	[illegible]
1881	542,378	396,737	14,000	258,463	[illegible]
1882	627,700	434,427	15,300	400,000	[illegible]
1883	601,288	439,156	15,370	348,210	1,911
1884	563,073	416,412	15,200	335,000	[illegible]

In our own country this business has only been started during the past two years, but has shown an encouraging growth.

The lead production of Great Britain has continued to show a decline, being gradually crushed out of existence by the competition of Spain. In 1870 the product was 73,420 tons, in 1880, 56,949 tons, and in 1884 it had dropped to 36,515 gross tons. The quantity available for home consumption ran up to 134,519 tons in 1879, but dropped to

119,092 tons in 1883, from which it has recovered to 135,273 tons in 1884.

The statistics for spelter possess little interest, since they give only the quantity of the zinc smelted from British ores, which is only a fraction of the quantity worked. Great Britain is the only country which does not officially report the total amount of spelter made in its smelting works.

Mr. I. Kip Hopper and the Tariff.

In discussing the prospects of the iron trade with a number of its leading representatives during the past month, whatever hopeful prognostications were ventured were always coupled with one proviso, "Unless Congress reopens the tariff question." Putting aside for the moment the discussion of the question whether and to what extent further changes could be carried, the agitation alone produced by wrangles in Congress over the subject would be calculated to stifle any movement toward greater activity and advancing prices. All are looking now more hopefully to the fall trade, but what little courage might be nursed into existence by that time would promptly be lost if present indications of a fresh contest over the tariff were to develop into certainty. The very fact that this is always uppermost in the minds of business men when they try to peer into the future shows that all of them have observed evidences of danger coming from that direction.

We have been placed in possession this week of letters which are ominous. They were written by Mr. I. Kip Hopper, who describes himself as having had long experience in the office of the Secretary of the Treasury, as an appraiser at the port of New York, and in South America as an importer of American manufactures. Mr. Hopper states that he has been authorized and requested by members of the Committee of Ways and Means, of the Finance Committee of the Senate, and by the Speaker of the House, to prepare a tariff bill for the next session. We quote from one of Mr. Hopper's letters: "The indications are that the "whole matter will be corrected at the next "session, and by drawing a bill as suggested "ready for action many blunders will be "avoided." How Mr. Hopper proposes to accomplish this may be gathered from the following passage: "There is a good deal "gained in having your [the firm addressed] "wishes incorporated when completed rather "than be introduced afterward. * * * "This matter is of grave importance to gen- "tlemen interested, and we propose to have "the matter correctly done, and not like "the last act, a mere jumble which Mem- "bers would not take the time to adjust, "and even if they did they could not be ex- "pected to be familiar with every interest. "Whatever matter I am not familiar with I "have carefully obtained In the confusion of "Congress and the occupation of Members, "particularly of the Ways and Means Com- "mittee, it is impossible for them to frame "an equitable tariff." This is indeed a pitiable picture to draw of the manner in which the representatives of the people discharge some of their most important duties. They delegate them to an irresponsible person, who, by his own confession, is not familiar with some of the matters he has undertaken. Is Mr. Hopper so immeasurably superior in intellect or by special training that he can study more successfully than the average member of the most important committees of Congress, or does he fill the functions of a cook, whose duty it is to convert their food into digestible form?

Mr. Hopper's position is one which, however, will little interest the public, except so far as it constitutes a severe reproach to his employers, whoever they may be. But when he defines the ground which the latter occupy, his words will command attention. In the letter from which we have already quoted he says: "The chief features, as in- "structed by Members, will be in the interest "of an export trade. The markets of South "America ought to be secured by us. I have "made several trips to Rio, but the duties on "raw materials are the difficulty. Therefore "we want all raw materials free, as much so "as possible." Then, referring to the specific article in which his correspondents are interested: "But as wire rods are a finished prod- "uct, a duty of, say, 10 per cent. would be "plenty. In view of their large use in mak- "ing wire our factories ought to have the ben- "efit of free duty on rods." Wire rods are evidently one of the matters with which Mr. Hopper is not familiar, and which he is carefully studying. Generously conceding them to be a finished product, he allows the wire-rod mill 10 per cent. to guard them against the German wire industry, which has been inflated far beyond the present or prospective needs of that country, and which may be expected in the near future to advance prices at home in order to meet those ruling here. Wire rods now, up to No. 5 gauge, pay a specific duty of $13.44 per ton, but since the great decline abroad the foreign makers are rolling No. 6 to No. 8, and bring them in under an ad valorem duty of 45 per cent., which carries the duty down to $11 per ton. Our American mills have slowly but steadily sought to supply our home market, and by building rod mills have come very near doing so. But the slightest disturbance of present duties, however small it might be, would give the foreign makers the trade and cause the stoppage of American works.

Who is Mr. I. Kip Hopper, anyhow? Is he what he claims to be, so far as regards his relations with Members of Congress? If so, his undertaking is a curious and instructive illustration of how the so-called "revenue reformers" are getting ready for their winter campaign. If not, we must conclude that Mr. Hopper is working on his own account, and for his individual benefit, a rather ingenious scheme. We have no doubt he is framing a tariff bill, but, from our present light, we can scarcely determine whether he expects to frame it to suit himself or to suit those whose preferences are expressed in currency. In either event, we counsel our readers to find out something about Mr. I. Kip Hopper before entering into confidential negotiations with him. A man with such a commission as he claims to hold would scarcely announce his business in the way adopted by that gentleman. Without prejudice to Mr. Hopper, we think his letters may safely be consigned to the waste basket.

Peru Since the War.

On October 20, 1883, a treaty of peace was signed at Lima between Chili and Peru, and on December 12 of the same year between Chili and Bolivia, thus ending the strife with the complete exhaustion of Peru and the cutting off from the Pacific of Bolivia. The military and financial exhaustion of Peru has been such that a freebooter, Caceres, has ever since, now nearly two years, continued in arms against the Government. Though frequently defeated, Caceres, at the head of his force of malcontents and Indians, still holds the field, at times threatening the capital, and declining all terms short of the retirement from power of the President, Iglesias. Some assert that a compromise could be arrived at if Pierola, who was the chief instigator of the luckless war on the Pacific, but who nevertheless enjoys a certain prestige, could be reinstalled. In some shape or another it is to be hoped that pacification may soon be brought about, the difficulties to be overcome in reorganizing such a vast, thinly-populated country being almost insurmountable so long as the Government cannot be said to exercise its sway beyond the walls of its capital. Meanwhile the sufferings of the people have been and are almost beyond endurance; the impoverishment is such that the coasting trade, which chiefly furnished provisions to the maritime provinces, is falling off alarmingly, because there is nothing left but an almost worthless paper money to pay for food. Yet Peru was but 10 years ago the richest country in South America. Even now the resources of the country, both mineral and agricultural, are such that absolute peace and the quiet rule of Iglesias, if he received the unanimous support and patriotic adherence of the people, would soon restore the country to prosperity, desperate as the finances may seem. The ruin of the latter and of commerce was severely felt in London and Paris. To ourselves Peru had lost much of its importance after the guano deposits on the coast islands were practically exhausted; yet even with crippled Peru we are doing a trade which, in spite of the impecunious condition of the population, has since the war been recovering steadily, because we furnish them with food and other articles they cannot do without.

In the calendar year 1884 we shipped to Peru $1,061,823 worth of domestic merchandise, whereas in the previous year only $724,354 worth were shipped. The import thence fell off but little, being $2,233,589, against $2,417,356. Our trade with Peru from 1869 to 1883 is shown in the table:

Fiscal year.	Export.	Import.
1869	$1,556,534	$1,386,310
1870	1,858,244	2,557,833
1871	2,279,778	4,731,430
1872	4,439,995	1,668,983
1873	2,671,534	1,186,161
1874	1,811,369	1,256,286
1875	2,443,657	1,291,235
1876	1,001,722	1,486,043
1877	1,239,006	1,479,511
1878	975,507	1,531,591
1879	1,253,991	1,857,859
1880	975,908	361,308
1881	99,785	760,556
1882	536,823	3,029,676
1883	487,399	2,526,918

The foregoing figures show that in one year, 1872, we shipped no less than $4,439,995 worth of merchandise, chiefly rolling stock for the famous Oroya Railroad. The latter, the most stupendous engineering work of modern times, has been as good as abandoned ever since the commencement of the war, having been begun by Henry Meigs, the California fugitive from justice, but on April 23 last Mr. Michael P. Grace, of New York, the brother and partner of Mayor Grace, concluded the purchase of this eighth wonder of the world from the Government of Peru. Most of the grading and tunnels between Chicla, the present terminus, and the famous Cerro del Pasco silver mines, a distance of 50 miles, have been completed, and only the ties and rails remain to be laid and the bridges put in. This Mr. Grace has agreed to do. The completion of the line to the mining regions will cost $10,000,000, but the portion of the line already constructed and in operation, with all its rolling stock, station-houses and equipments of every sort, he gets practically for nothing, as under the conditions of a 99 years' lease he has the use of the railroad and all that belongs to it without payment for the first seven years, and pays but $25,000 per year rental for the property during the remainder of the term. In other words, Mr. Grace gets a property which cost $27,600,000—86 miles of railroad already equipped and in operation, 50 miles of the most expensive tunneling and grading—for nothing, provided he completes the line; and, more than this, he gets the Cerro del Pasco silver mines. Competent mining engineers assert that these mines still contain one of the richest silver deposits extant.

It is fair to presume that American trade is bound to reap advantages from bargains of this kind made by American merchants. The Peruvian Government is now in that desperate frame of mind which only finds consolation in the thought that things have come to such a pass that they cannot possibly be worse. On January 1, 1882, the foreign indebtedness of Peru amounted to $10,426,517, and the home debt to $9,445,190. Of the 1581 miles of railroad in operation in 1878, 1210 were Government property. Of telegraphs there were in operation at the time only 1393 miles. After a while the fine sugar estates of Peru may again become productive. Many had their machinery ruthlessly destroyed during the war, and the planters were ruined by "cupos," or forced loans. There is some guano left unpledged, and in years of peace and prosperity Peru exports wool, cotton and rice, but sugar was the most important product before the war, amounting to 60,000 tons annually. Chili showed wisdom in keeping only the Province of Tarapacá, with its nitrate beds, about the most immediately valuable deposits that were left. According to the terms of peace she may also obtain Tacna and Arica for $10,000,000 at the end of 10 years, should universal suffrage of the inhabitants of those provinces decide in her favor, and there is little doubt they will so decide. These coast territories are also valuable, and would be fully developed in the hands of a nation as energetic and practical as the Chileans.

Buncomb About Southern Iron.

The *Times-Democrat*, of New Orleans, is certainly a most credulous journal, or else it imagines that its readers are prepared to believe anything. In a recent issue it prints the following:

The truth is that the people whose business as representatives of the interest it is to know the facts of the situation, do know them, and conceal them in fear of the fate that is supposed to visit the bearers of unpleasant news. For instance, *The Iron Age*, published in New York, has been conspicuous for its policy of antagonism and disbelief in respect of Southern iron development. It has scouted the idea that our iron could ever compete successfully with the production of its chief constituents—the Pennsylvania ironmasters—and it has gone the length of asserting that in shipping Southern Iron to the East our furnace proprietors have been breaking themselves while breaking the markets so long the monopoly of the *Age's* friends in Pittsburgh and elsewhere. Of course papers like the one referred to are not as ignorant as they affect to be on this matter. What they deny in print and in public they are not so certain about in private life! As an illustration of the difference between the private knowledge and public expression of such publications, some time ago the accredited representative of the New York *Iron Age* assured a member of the editorial staff of this paper that the truth concerning the cost of iron production in Alabama, and especially the Birmingham district, would have to come out by and by; that he had been making a careful canvass of the subject, and that he was positively convinced that Birmingham furnaces, having the advantage of owning their own ore and fuel, were making iron for not to exceed $9 per ton. This representative stated that he had been shown bills of pig iron purchased by foundrymen and others as low as $10 per ton, and he felt satisfied that such a figure did not represent a cost of over $9 to the producer. He announced his entire satisfaction that the furnaces were making at least a margin of profit at $9, and instanced one furnace where he believed iron was being turned out at even a smaller cost. The gentleman referred to said that he had come to examine and report, and thought that the surprising results of his investigation would much change the attitude of *The Iron Age*, which, as he observed, had grown to its present circulation and patronage by fairness and always telling the truth. If it would tell a little of the truth concerning the present status and inevitable future growth of the Southern iron interests, the medicine might be disagreeable to its Eastern readers, but it would tend to dissipate some of the illusions on the subject which they entertain, and which journals like *The Iron Age* have done much to foster.

It would have been difficult to frame a paragraph containing less of truth than the above. Primarily, *The Iron Age* has not been conspicuous for antagonsim to Southern interests or "its disbelief in respect of Southern iron development"—whatever that may mean. The development of the iron industries of the South is remarkable, and no man can be ignorant of it who knows anything of industrial statistics. We have endeavored from time to time to correct wrong impressions which those who have mineral lands to sell have labored to create In every newly-developed section there come to the front a class of professional "boomers," who make a business of straight-away, thick-and-thin lying. The South has produced not a few of this class of men. They are mostly land speculators, political demagogues or local journalists. They lack the discretion to lie plausibly; they are totally indifferent to the most emphatic and authoritative contradiction. They do a section vastly more harm than good, and whoever invests on the strength of the promises they make is certain to find himself deceived. The men who are really building up the iron interests of the South are seldom found in such company. They do not think it worth their while to contradict what is said by the "boomers," but they are careful not to confirm it. Conservative local opinion never approves their wild and unauthorized utterances, and, when some one is found with the courage to tell the plain truth, it is not the men who know the truth who are displeased. This is eminently the case in the South, as the Editor of *The Iron Age* has the best of reasons to know.

As to the person quoted as speaking officially as an "accredited representative" of *The Iron Age*, it is only necessary to say that his views on any subject are without value. The person referred to is a general canvasser for newspaper subscriptions. He traveled at his own expense, wherever it best suited him to go, and represented in this capacity as many journals as he could make arrangements with. For a number of reasons it was desirable that even this slight authority should be canceled, so far as the publications of this office were concerned, and he does not now hold from us even an authorization to canvass for subscriptions. He has never had authority from us to examine anything, and has at no time been regarded as competent to report on subjects of editorial interest. If he has said in Birmingham what he is reported to have said, he has done so on his own responsibility entirely.

We would again ask, in all seriousness, of what use is this sort of newspaper controversy? It is time that those who talk so much about $9 iron or $10 iron should be made to understand that they are becoming public nuisances, and that their reckless boasting is destroying public confidence in the real advantages of the South for iron-making. The reproof should come from those who know from experience that there is no ground for rejoicing in the conditions which, on the average, render unprofitable the manufacture of Southern iron for Northern consumption; that the real promoter of Southern interest is not the man who sells land and induces capitalists to build furnaces, but the man who encourages the development of local industries which consume Southern iron and convert it into forms which will better bear the cost of long-distance transportation. Such articles as that from which we have quoted above, and many like them which have appeared in Birmingham papers since the conditions of iron-making in Alabama were critically examined in an address delivered at the opening of the last meeting of the American Institute of Mining Engineers, are worse than useless. There are in Birmingham many men who have paid many thousands of dollars to find out what it costs to make pig iron in that district. If they will tell, we shall know; if they decline to tell, we shall scarcely accept as trustworthy estimates for which nobody is responsible.

During the past week Brown, Bonnell & Co., at Youngstown, Ohio, have been in almost constant communication with their workmen, endeavoring to arrange a basis upon which work could be resumed at their mill. The point at issue at last, it is understood, was the old-rail clause. As the orders which the mill had and which they were anxious to fill did not necessitate the use of old rails, the offer was made to run the mill at the prices agreed upon at Pittsburgh, the old-rail clause to be held in abeyance until such time as the mill should desire to use old rails, but Brown, Bonnell & Co. refused to agree in advance to be bound by the action of the committee to be appointed to settle the old-rail question. The men declined to accept the offer under that condition, and the mill is still idle. This may seem a small matter to quarrel over, especially in view of the fact that the offer of Brown, Bonnel & Co. is essentially acquiesence in the terms upon which the settlement was made at Pittsburgh, with the single exception that the Pittsburgh mills have agreed to abide by the decision of the committee. The men would have the same power to enforce the decision of the committee that they have had in compelling Brown, Bonnell & Co. to accept an agreement which their representation at the last conference at Pittsburgh between the Amalgamated and the manufacturers refused to accept. The workmen, however, believed, and doubtless correctly, that the point at issue was not so much the price to be paid for old rail iron as the continuance of the relation between the Youngstown and the Pittsburgh members of the Amalgamated Association. In a word, the workmen regarded it as an attempt to detach the Youngstown and neighboring lodges from the Pittsburgh lodges, and refused to be consenting parties. So the strike continues.

Resolutions at the Metal Exchange on the Death of General Grant.

A meeting of the Metal Exchange was held July 24, after the morning call, with President Geo. V. Tompkins in the chair, who made an appropriate address.

Mr. Tallmadge Delafield offered the following resolutions, which were unanimously adopted:

Whereas, In the death of Gen. Ulysses S. Grant the nation is called to mourn the loss of its most distinguished citizen and soldier; and,

Whereas, The members of the New York Metal Exchange are desirous of adding their mite to the general expression of grief; therefore,

Resolved, That we hereby express our sympathy with his family and our appreciation of the loss which the country has sustained. While mourning with our fellow-citizens, we do not forget the qualities of mind which raised General Grant from the unknown citizen to the highest position in our Government, and made him the companion of Kings and Emperors in the Old World, nor do we forget the wonderful strength of will and sturdy integrity of character which has sustained him the last few months under sufferings of body and mind such as few men are called on to endure.

Resolved, That on the day appointed for the funeral this exchange shall be closed and the members will unite with others in showing the proper respect to his memory.

Resolved, That the secretary be directed to send a copy of these resolutions to the family.

WASHINGTON NEWS.

(*From Our Special Correspondent.*)

WASHINGTON, D. C., July 28, 1885.

Secretary Manning's circular is likely to have some effect upon the *personnel* of the present consular organization of the United States. The system of undervaluation has been carried on to such an extent that it is charged that it has not only materially lessened the revenues, but has also increased the importations and thereby the competition of foreign articles. The Secretary looks at the question as it affects the revenues and is a violation of the law. The department is not able to give approximate figures as to the amount of undervaluation in dollars, but claims that the amount is large, and the collusion of consular officers, appraisers and importers in the illegal procedure must be stopped, and the parties, where detected, must be punished. A formidable pressure on the Administration is already noticeable in hopes to divert the attention of the department from the purposes set forth in the Secretary's circular. The Secretary is determined to carry out the law, as any winking at such violations would not only soon demoralize the whole customs service, but would render practically inoperative a statute of the United States and would cripple the Government financially.

SECRETARY WHITNEY AND THE CRUISERS.

The action of the Government in the case of the Dolphin is likely to become a national issue. Several Republican Senators of prominence who are in the city have intimated that the course of the Secretary of the Navy will be investigated, and the facts in the case will be brought to the front. Without judging of the merits of the allegations against Mr. Roach and his relations with the Government, unless the investigation very conclusively supports the charges of the Secretary of the Navy and the opinion of the Attorney-General, the prospects of building up a navy may be regarded as materially dimmed.

THE COSTA RICAN TARIFF.

The Department of State is in receipt of the latest tariff of the Republic of Costa Rica. The following is the tariff of duties on imports of articles within the schedules of metals or manufactures thereof:

	Per libra.
Beds of iron	$0.02¼
Beds of bronze	0.04½
Bell-metal composition	0.04½
Bell-metal for 2-pound bells or over	0.06
Bell-metal for bells under 2 pounds	0.22½
Chains of iron for dogs and horses	0.09
Chains for agricultural purposes	0.01½
Hooks and rings of steel	0.22½
Hooks and rings of iron or other metals	0.09
Iron cable	0.02¼
Iron in pigs	0.00¾
Iron forged in bars	0.00¾
Iron in plates—sheet iron	0.00¾
Iron in wire and iron web	0.04½
Iron in grates, windows, ballusters, &c	0.08
Iron cast into pots, boilers, pans, brackets for ironing, &c	0.03
Iron nails and tacks	0.03¾
Iron screws	0.04¾
Iron for plows and harrows	0.01½
Iron axes, hoes, picks, cutlasses, swords, knives and similar objects, over 18 inches	0.04½
Iron in chains, for carts and other uses	0.01½
Iron in shoes, for horses and oxen	0.01½
Iron in tires 4 inches wide	.01½
Iron in tires of narrow dimensions	.01½
Iron in axles and hubs	.01½
Iron in bridles, bits, padlocks lock-bolts, pulleys, &c	.12
Iron in haberdash and hardware not else enumerated	.22½
Iron in sword blades, foils and florets	.75
Iron tinned, iron plates	.03
Iron in small blades of all sorts	.37½
Knives of iron and steel until 18 inches long	.09
Lightning-rods	.01½
Lead in bars or lumps	0.00¾
Lead in sheets	.01½
Lead in other artices over 2 pounds	.01½
Lead in hardware	.22½
Machines for agriculture and mining	free
Machines for other industries	.01½
Pens of steel, iron or other metals	.37½
Plates of iron	.01½
Plows	.01½
Razors and penknives	.75
Steel, in bar or in rods	.01½
Steel, in wire	.07½
Steel, in texture	.09
Steel, in plates or sheets	.03
Steel, in manufactured articles, 3 pounds and over	.09
Steel, in manufactured articles under 3 pounds	.22½
Stoves of iron	.02½
Swords	.75
Sword blades of copper, brass or other materials	.01
Tin, in articles of 4 pounds and over	.03
Tin, in articles under 4 pounds	.22½
Tin, in pigs, bars and sheets	.01½
Tubes of iron or other metals for aqueducts	.01½
Zinc, in bars and sheets	.04½
Zinc, in articles 4 pounds and over	.07½
Zinc, in articles under 4 pounds	.15
Zinc hardware not specified	.22½

THE GERMAN IRON TRADE.

The Department of State has received official advices giving some statistics compiled from the data collected by the German Iron Masters' Association, the financial results of 102 companies. In 1879 the results of the operations of these companies was a profit of $1,411,102, or 1.6 per cent. on the capital invested. In 1883 the net profits of the same were $5,758,127, or 6.79 per cent. Fifty of these companies, with a capital of $63,965,832, realized in 1879 a dividend of 0.94 per cent., and 6.14 per cent. in 1883.

THE SPEAKERSHIP.

It is understood that the Administration will have its position so understood on the tariff and silver questions that the organization of the House of Representatives will not be overlooked as one of the movements antecedent to legislation on both subjects.

DECISIONS IN CUSTOMS CASES.

The Secretary of the Treasury has rendered the following decisions affecting questions arising under the regulations:

On the entry of goods by an attorney for a firm absent from the port, a bond must be taken to produce the owner's oath.

Certain rifles imported and entered for bonded warehouse cannot be repacked in such warehouse, the repacking not being necessary for the safety and preservation of the goods.

An alleged error of classification of imported merchandise cannot be corrected except upon protest and appeal being made in the manner prescribed by Section 2931, Revised Statutes.

THE

Iron Age Directory

AND

Index to Advertisements.

Special Notices.

RECENT BOOKS.

Davies.—Standard Practical Plumbing. By P. J. Davies; 2000 illustrations, 362 pages, 4to, cloth. . . . . $2.

A large part of this work is made up of articles that have appeared in several of the English building and sanitary publications, and, while in consulting the book it should be kept in mind that it was designed for English practice, yet it cannot fail to be of practical value to American plumbers, as no similar book of American practice has been published. Every subject connected with the plumbing trade is treated in the most thorough manner, and the numerous illustrations add greatly to the value of the work. Much new matter has been added, making the book an encyclopedia of plumbing and a book of reference for the workman that may be used as a guide in any plumbing job, however intricate.

Architectural Studies Part I; 12 Designs for Low-Cost Houses. Portfolio, 4to. . . . . $1.

These plates in paper cover contain examples of low-cost houses, together with specifications, bills of materials and estimates of cost. A limited amount of detail work is presented. The designs are for houses ranging in estimated cost from $1000 to $4000.

A New System of Hand-Railing, Cut Square to the Plank Without the Aid of Falling Molds. By An Old Stair-Builder; 3 folding plates and 23 illustrations, 65 pages, 12mo, cloth. . . $1

The book is divided into two parts, the first relating to geometry and the second to the methods of getting out work. All wreaths are cut out square from the plank, with square joints. Seven complete examples are given, with illustrations and descriptive text. It is claimed that by this method much time and material are saved and the wreaths formed with more accuracy than by the older methods.

Stair-Building Made Easy. By F. T. Hodgson 123 illustrations, 123 Pages, 12mo, cloth. . . $1.

Problems in hand-railing are not considered to any extent in this book. The author presumes that the reader is a beginner in the art of stair-building, and has treated the subject in the most practical manner by first explaining how to build a stair of the humblest sort, and then leading the workman step by step to the consideration of more complex construction. The book contains descriptions of the art of building the bodies, carriages and cases for all kinds of stairs and steps, together with illustrations showing the manner of laying out stairs, forming treads and risers, building cylinders, preparing strings, and instructions for making carriages for common, platform, dog-legged and winding stairs. An illustrated glossary of terms is added, with designs for newels, balusters, brackets, stair-moldings and sections of hand-rails.

Walton, T. H.—Coal Mining Described and Illustrated. $5.

Society of Telegraph Engineers' Journal. No. 54. $1.60.

Bowser, E. A.—An Elementary Treatise on Analytic Mechanics. $3.

Hamilton, J. A.—Architects' and Stairbuilders' Tables of Treads and Risers. 50 cents.

Reed, E. J.—A Treatise on the Stability of Ships. $7.50.

Richards, J.—Wood-Working Machinery, and the Arrangement of Factories, (revised edition of the Operators' Handbook.) $1.50.

Smith, Prof. C. A.—Steam Using; or Steam Engine Practice. $2.50

Wright, F. A.—Architectural Perspective for Beginners. $3.

Sent, postpaid, on receipt of the price by

DAVID WILLIAMS,

Publisher and Bookseller,

83 Reade St.. - New York.

FOR SALE.

Retail Hardware Store, established 5 years, doing a first-class trade. Reasons for selling, have to leave city on account of ill-health. Store, a dwelling—11 rooms—all conveniences, can be leased for 5 years. Price, $3500.

Address, C. F. WEST, 1940 Columbia ave., Philadelphia, Pa.

FOR SALE.

A good, clean stock of Hardware, Stoves, Tinware, and the store building, in the best town in North Dakota. All worth about $7000. Business established and paying well. Good reasons for selling. Will prove to a would-be buyer's satisfaction that the above are facts.

Address "LOCK BOX 30," Lisbon, North Dakota.

79 & 81 DUANE STREET, NEW YORK, July 29, 1885.

Till further notice our quotation for first quality American Flat Head Iron Screws will remain 85, 10 & 10 %, R. & E. list, subject to terms and conditions named in our cards of June 10 and 24.

SMITH, LYON & FIELD.

TO LET.

A new and complete Foundry for Gas and Water Pipe, for a term of years.

HOWARD ELMER, Sayre, Pa.

WANTED.—A few good lines of Hardware and House Furnishing Goods to sell to the retail trade of New York, Brooklyn and vicinity. Personal attention given. Correspondence solicited. Address THE C. TENNEY HARDWARE CO., Brooklyn, E. D., N. Y.

A young man, well posted in General Hardware, desires position as Buyer or Salesman. Best references.

"POSTED," Office of *The Iron Age*, 83 Reade Street, New York.

Special Notices.

To Cutlery Buyers.

E. BISSELL & CO.,

Wholesale Auctioneers.

By order of Seven Large Cutlery Companies, Large, Special and Peremptory Sale of

Table & Pocket Cutlery,

CARVERS, BUTCHER KNIVES, &c.,

FIRST AND SECOND QUALITY,

On TUESDAY, WEDNESDAY and THURSDAY,

August 11th, 12th and 13th,

At 10 o'clock a. m. each day.

At Our Salesroom,

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For Account of Whom It May Concern:

To cover advances and attachments, a large Bankrupt Stock of Table Cutlery, Carvers and Butcher Knives, &c., first quality, of the celebrated manufacture of the Lamson & Goodnow Mfg. Co. This sale will comprise in part over 40,000 dozen Table Knives and Forks, desirable patterns; 2000 dozen Knives only, in Bone, Rubber, Ivoride, Pearl, Ivory and Ebony; 5000 pairs Carvers, in Stag, Ivoride, Bone, Rubber, Walrus, Cocoa and Ebony; 3000 dozen Butcher, Bread Putty, Pallette, Butter and Cheese Knives; 1000 dozen Plated Tea and Table Spoons and Forks; 1500 dozen Plated Steel Knives, Nut Picks and Fruit Knives; 2000 dozen Cast-Steel, Nickel-Plated and Japanned Shears; American and Foreign Pocket Cutlery; also fine cases of Scissors, Carvers, &c., &c.; also 250 dozen Imported Hair Brushes, together with other lines of goods. This is a very important sale, and well worthy the attention of the Trade.

Catalogues will be sent to those who desire them as soon as issued.

SPECIAL NOTICE,

NOTICE.—M. V. Smith has no longer any connection whatever with the Tyrone Furnace Company; he has no interest in the M. V. Smith's Regenerative Gas Furnace Patents, nor any authority to use them or any improvements made to the same by him. All persons are hereby cautioned against purchasing or contracting with said M. V. Smith for the use of said patents or any part thereof. Licenses to use said Furnaces can be obtained only from the undersigned. TYRONE FURNACE CO.

June 17th, 1885. Tyrone, Pa.

In view of the above notice, published in *The Iron Age* of July 2d, 1885, I have to say that (while the publication is correct) I severed my connection with the Tyrone Company of my own free will and accord, solely with a view of extending my business as metallurgical engineer. My practice hereafter will be to furnish plans, specifications and estimates, as well as to superintend the construction of REGENERATIVE GAS FURNACES, on which there are *no valid patents*, charging a reasonable fee for my work. I had over 14 years' practical experience in the business, and am prepared to guarantee good work, as well as to protect my clients against infringements.

For further information address

M. V. SMITH, Altoona, Pa.

FOR SALE AT A BARGAIN.

28 open side, 20 yard Dump Cars; one Shifting Locomotive, saddle tank, Porter. All standard gauge and in first-class order.

LINDSAY, PARVIN & CO., 328 Walnut Street, Philadelphia.

FOR SALE.—One good second-hand 20-horse-power Portable Engine and Circular Saw Mill; also a lot of second-hand Cylinder Boilers and new horizontal stationary Steam Engines.

MERWIN McKAIG, Cumberland, Md.

Traveling Salesman Wanted.

By a manufacturing concern to sell goods to the Hardware Trade.

Address "TRADE," Box 101,

Office of *The Iron Age*, 83 Reade St., New York.

Salesman Wanted.

A manufacturing company in the West is in want of a first-class, experienced Salesman of good address, familiar with the jobbing Hardware, Stove, Crockery and Glassware trades north and south of a line drawn between Chicago and Buffalo. Communications will be treated as confidential, and must state experience, age and salary expected. None but experienced men need apply

Address "SALESMAN," Box 71,

Office of *The Iron Age*, 83 Reade St., New York.

Wanted.

Catalogues, Price Lists and Discount Sheets of Hardware, Tools, Cutlery, Lamps, Brushes, Paints, Oils, &c. Will open new Hardware store in August, in Flemington, N. J.

Address J. E. CARKHUFF, Flemington, N. J.

"GO SOUTH, YOUNG MAN."

Wanted.

A business manager to take an interest in and conduct a prosperous and growing PLUMBING AND IRON PIPE AND FITTINGS BUSINESS, located in the *livest* city in the South, containing 20,000 inhabitants and growing unprecedentedly.

Rare opportunity for a man who understands the business and can furnish satisfactory references. Address "MANAGER," Box 818, Office of *The Iron Age*, 83 Reade St., New York.

SITUATION WANTED by young man ten years' experience in Hardware, Stoves, Doors, Windows and Paint.

Address "T. A. T." 394 6th Ave., Milwaukee, Wis.

WANTED.—A situation as Assistant Superintendent in a Rolling Mill, Open Hearth or Bessemer Steel Works, by a metallurgical Engineer, thoretically and practically trained, and who has held positions as assistant superintendent at Krupp's Steel Works, Germany, and at the Consett Iron and Steel Works, England. Address "F. R. E.," P. O. Box 2878, New York City.

NOTICE.

Large Buyers of Shafting are requested to send specification for special prices.

MERWIN McKAIG, Cumberland, Md.

Special Notices.

Second-Hand

MACHINERY.

1 Engine Lathe, 92-in. swing, 20-ft. bed, with Back face plate for Fit work.
2 7-ft. swing Engine Lathe, 10 ft. bet. centers.
2 Engine Lathe, 7-ft. swing, 30 ft. bet. centers.
1 " 48 in. " 24 ft. bed. Cheap.
1 " 33 " 10½ " Pond.
1 " 28 " 16 " Fifield.
1 " 27 " 18 " Heavy.
1 " 27 " 14 " Heavy.
1 " 21 " 12 "
1 " 19 " 7 " Whitcomb.
1 " 18 " 8 " Lamson.
1 " 18 " 7 " Gould.
1 " 16½ " 7½ " Pond.
2 " 16 " 6 " Cheap.
1 " 15 " 6 "
1 Screw-Cutting Foot Lathe, 8 in2h.
2 Foot Lathes, 8 in. and 10 in. swing, 3 ft. bed.
1 Iron Planer, 42 x 42 x 12 ft. New Haven.
1 " 32 x 32 in. x 9 ft. New Haven.
1 " 30 x 30 in. x 8 ft. Bigelow.
1 " 30 x 30 in. x 6½ ft. Stillman.
1 " 24 x 18 in. x 4 ft. Freeland.
1 " 24 x 24 x 5 ft. New Haven.
1 " 20 x 20 x 4 ft. Bishop.
1 Lincoln Milling Machine.
1 18-in. Drill. Blaisdell. Plain.
1 28-in. Drill, wheel feed, back geared. Gould.
1 36-in. " "
2 15-in. Drills, wheel feed.
2 Bench Drills, lever feed.
4 Blacksmith Post Drills.
1 2-Spindle Drill Fine
1 20-in. Shaping Machine.
1 Shaping Machine, 12 in. stroke. Very heavy.
1 12-in. sliding, 4 ft. bed, Hand Lathe.
3 10-in. " Hand Lathes.
1 Cutter Grinder.
1 Upright Boring Mill, 50-in. swing x 24 in. high.
1 Pulley Hub Drilling and Tapping Machine.
1 Slotting Machine, center 54 in. Cheap.
1 Power Geared Shear, 21-in. Throat. Cuts 1 in. iron.
1 10 in. Alligator Shears. Heavy.
1 Alligator Shears, 6-in. Jaw.
1 Circular Slitting Shear, center of 44 in.
1 Hand Bar Iron Shears.
1 No. 42 Bliss Power Press.
1 No. 7 Blake & Johnson Power Press.
1 No. 2 Fowler Press.
2 No. 2 Otis Presses, Wheel.
1 No. 4 Merriman Power Press.
1 Heavy Screw Press, 3-in. diam. Screw.
1 Ferracute Screw Press.
1 Small Screw Press.
1 Large Foot Press, 22-in. hole in bed.
10 Foot Presses, various sizes.
1 Power Geared Punch, 21-in. Throat. Punch hole 1 in. x 1 in.
3 Hand Punches.
1 Drop Hammer and Lifter. 13-in. Die space.
1 Drop Press, 7-ft. guides, 11-in. space, 120 lb.
1 Set 6½-ft. Power Bending Rolls. Very cheap.
1 Hydraulic Wheel Press.
2 Bolt Cutters, 1 each 2-in. and 2¼-in.
1 Double Head Bolt Cutter.
1 Durrell 7-Spindle Upright Nut Tapper.
1 150-lb Sellers Steam Hammer.
1 60-lb Palmer Spring Hammer.
1 100-lb Jenkins' Patent Vulcan Power Hammer.
1 40-lb Bradley Hammer.
1 25-lb Bradley Hammer.
1 Shaw & Justice 50-lb Dead Stroke Hammer.
1 Foot Power Hammer.
1 Alden Stone Crusher, No. 6.
1 Grindstone and Frame.
1 1-ton Harrington Chain Hoist, 24-ft. lift.
2 Paint Mills. 1 Paint Mixer. Kent's.
1 Foundry Rattle Mill or Tumbling Barrel.
1 15 H.-P. Horizontal Engine.

The above are all in first-class condition, and will be sold at very low figures.

Have also a lot of new machinery for sale at bottom prices.

This list is changed every week, and if it does not contain what you want, write us, stating particulars. Machinery bought, exchanged or sold on commission.

Badger & Stetson,

49 Dey St., New York City.

FOR SALE.

One Harris's Corliss Engine, 16 x 42.
One Corliss Engine 14 x 48.
Two Horizontal Tubular Boilers, 56 H.-P.
One No. 5 Knowles Steam Pump. Nearly new.
" No. 4 I. B. Davis Boiler Pump.
" 3-in. one 4-in., Fales & Jencks Rotary Pumps.
800 ft. 4-in. Cast-iron Pipe, flanged.

D. B. CRUICKSHANK, 243 Dyer St., Providence, R. I.

For Sale..

Second-hand Tanks, large assortment.
New Mess Pans, 150,000.
New Mule Shoes
Scrap Iron and Old Metals.

BUSSENIUS, CUNLIFFE & CO., 12th and Washington ave., Philadelphia.

FOR SALE.

BAKER BLOWERS, Nos. 2, 4 and 5½; ROOT BLOWERS, Nos. ¾, 1½, 1, 2, 4, 5 and 7; STURTEVANT BLOWERS, Nos. 0, 1, 3, 4, 7 and 10; do. EXHAUSTERS, Nos. 0, 2 and 39; MACHINERY of SUGAR HOUSE, such as Vacuum Pans, Sugar Wagons, Engines, Pumps, Tanks, &c.; Horizontal Boiler, 50 H. P.; Verticals, do., 12 and 3 H.-P.; Pumps. PURCHASERS OF MACHINERY will find it to their advantage to correspond with C. R. BIGELOW, M. E., 45 Dey St., N. Y. City.

For Sale.

New first-class Machine Tools at very low prices, combining all the latest and best improvements:

Engine Lathes with 6 and 8 foot beds, 16-inch swing.
18-inch swing, with 8, 10 and 12 foot beds.
25-inch swing, with 12½-foot beds.
26, 27 and 28 inch swing, with 12½-foot beds.
For description, cuts and prices, address.

JOS. B. REED, Cairo, Ill., U. S. A.

Wire Nail Machines.

NOTICE.

Having arranged with the Birmingham Iron Foundry, of Birmingham, Conn., to manufacture and sell my Patent Wire Nail Machines, I refer further orders and inquiries to them. Thanking the public for past favors, I am very respectfully,

FRED. H. HARDMAN.

JUNE 17, 1885.

For further particulars and prices address

BIRMINGHAM IRON FOUNDRY,

Birmingham, Conn.

BOILER SHOP FOR RENT,

with complete equipment of power tools, in Chicago. Will give party considerable work.

Address "OWNER,"

Office of *The Iron Age*, 38 Clark St., Chicago, Ill.

Special Notices.

Engines and Boilers.

NEW AND SECOND-HAND.

The following new Slide-Valve Engines guaranteed complete and first class:

One 14 x 16.	One 8 x 10.
One 12 x 16.	One 11 x 16,
One 18 x 24.	One 10 x 15.
One 14 x 20.	One 10 x 12.

Second-hand, guaranteed in good condition:

One Corliss Cut-off. 16 x 42.
" " " 12 x 30.
" Wright " 22 x 42.
One Adjustable Cut-off. 16 x 48.
" " " 10 x 30.
One Safety Power Vertical Engine, 6 H.-P.
One Corliss Beam Condensing Engine, 30 x 72.

Large stock assorted sizes new and latest improved Engines and Boilers. Come and examine our stock. Plans, estimates and specifications furnished for mills and factories, guaranteeing best results; steam engine indication; cards demonstrated for economy, &c. Send for circular.

NEWELL UNIVERSAL MILL CO., 10 Barclay Street, New York.

BOOKS.

LAMBERSON'S

HARDWARE PRICE BOOK,

Pocket Edition, each $4.00.

DISCOUNT BOOK,

Just out. Cloth, $2.50. Leather, $3.00.

Send for Descriptive Circulars.

Sent, post-paid, to any address, on receipt of price by B. LAMBERSON, Portland Oregon; David Williams, 83 Reade St., N. Y.; A. F. Shapleigh & Cantwell Hdw. Co., St. Louis, Mo., or William Blair & Co., Chicago, Ill.

FOR SALE.

THE CUTLERY MANUFACTORY AND MACHINERY,

formerly known as the White & Sanson Cutlery Works, at Hedge and Oxford Streets, Frankford, Philadelphia, with Patent No. 108,740, for improvement in Handles of Table Knives. Full particulars upon application to

WILLIAM L. DuBOIS, Treasurer of the Philadelphia Trust, Safe Deposit and Insurance Company, 413, 415 and 417 Chestnut St., Philadelphia.

Notice to Machinists.

Having purchased the patent of the Steel Wire Tube and Flue Brush of Messrs. Philip Farley & Co., and the stock, tools and fixtures used by us in the manufacture of the same, we request that after this date all orders and communications regarding this brush should be addressed to us. The above Tube-cleaning Brush is acknowledged as decidedly the best in the market; and, now that we have full control of the patents, it is our intention to sell them at reduced prices.

Send your orders to

Yours truly J. W. PAXSON & CO., 1021 North Delaware Ave., Philadelphia.

SPECIAL NOTICE.

NAPIER'S PATENT GOVERNOR OR SPEED REGULATOR.

Messrs. Napier Brothers, Engineers, Glasgow, Scotland, wish to dispose of their United States patent of November 11, 1884, for their Speed Regulator and Governor, which has been so successful in Great Britain. Apply to

MESSRS. NAPIER BROTHERS, Hyde Park Street, Glasgow, Scotland.

Cotton Gin Ribs.

HARDWARE MERCHANTS

and others furnished with materials of all kinds for making and repairing COTTON GINS. RIBS and SAWS for repairing ALL makes of gins. Send for Price List. Address THE BROWN COTTON GIN CO., Manufacturers of Cotton Gins, Feeders and Condensers, New London, Conn.

WANTED.

In the Heavy Hardware business in the most promising city of the West, a partner with $15,000 to $20,000, to increase stock to meet the rapid growth of business. None but a thoroughly reliable partner is wanted. Sales $8000 to $10,000 monthly. Address "M.," Box 41, Office of *The Iron Age*, 83 Reade St., New York.

WANTED,

A situation as Rolling Mill Supt. or Assistant Supt. by a practical, competent person. Has had large experience in erecting new mills and putting down new Machinery of all kinds pertaining to Rolling Mill business. Would not object to taking charge of the erection of new Machinery of any kind—anywhere.

"ROLLING MILL SUPT," Office of *The Iron Age*, 83 Reade St., New York.

WANTED.

I wish to buy out an established Hardware business in a good, live town.

Address "BUYER," Office of *The Iron Age*, 83 Reade st., New York, giving general outline of business, capital, &c.

WANTED—One or two business men, with from $25,000 to $50,000, to take an interest in a successful Hardware Manufacturing Co. A splendid chance to the right men. Business thoroughly established in all parts of the United States and Canada, and an absolutely safe and profitable one. Is a Stock Company in good standing, with more orders from the best houses than can be filled with present facilities, and the intention is to increase the capital, build larger works and fill orders. The best of references given and required. Address "B. P. R." Office of *The Iron Age*, 83 Reade st., New York.

SALESMAN desires engagement with first-class manufacturer; thoroughly understands all branches of the Rolled Iron and Steel business; is well and favorably known to the trade West and South; would travel or take charge of branch house or local agency in Western city. Address "IRON SALESMAN," Box 43, Office of *The Iron Age*, 83 Reade St., New York.

WINTHROP PARKER,
Attorney and Counsellor at Law,
Evening Post Building, 206 Broadway, N. Y.
Prompt attention and reasonable charges. Trade references on application.

Special Notices.

AXLE MACHINERY.

A complete lot of modern Machinery for manufacturing Carriage Axles.

Tools have been in use about three years.

Will sell one Machine, or the lot, to suit the customer; immediate delivery.

LIST:

2 Kingsley Helve Hammers.
1 Bradley Helve Hammer, 100 lbs.
4 14 in. x 4½ ft. Putnam Engine Lathes.
8 17 in. x 6½ ft. " "
2 Pratt & Whitney No. 4 Back Geared, Nut Tapping and Facing Machines (or Screw Machines).
2 Pratt & Whitney Axle Threading Machines, with Turret Head.
1 Pratt & Whitney No. 2 Milling Machine, hand feed.
1 Wilder Bar Iron Cutter, capacity, 2¼ Square Iron.
1 Bar Iron Cutter, capacity, 3½ in. Square Iron.
1 Sturtevant No. 4 Steel Pressure Blower and Counter-shaft.
2 Reaming Machines, quick acting, excellent tools.
2 Tumblers, 4 ft. x 2 ft.
1 Revolving Forge.
3 Cast Iron Forges.
1 Platform Scale.

A large and valuable lot of small tools, fitted to above Machines, and adapted to the business.

We have a full line of new machinery, and are prepared to make low quotations. We are also agent for the following firms. Write full particulars of what is wanted.

NEW YORK AGENT FOR

Brown & Sharpe Manufacturing Co.
P. Blaisdell & Co.
Powell Machine Tool Co.
Bradley's Cushion Hammer.
National Mchy. Co., Bolt and Nut Mchy.
Hilles & Jones, Boiler Tools.
Slates' Sensitive Drills
Elliott's Drills. Gage Brass Lathes.

E. P. BULLARD, 14 Dey St., N. Y.

For Sale.

Will sell cheap for cash and time payments, or will exchange for real estate or lumber, any part of the following machinery, subject to inspection before purchase

1 Train of Lauth's 24 in. 3-high Rolls.
1 Train of 2-high 22-in. Plate and Sheet Rolls and Duplicate Rolls.
1 Train of 20 in. Soft Rolls and Duplicate Rolls.
1 Compound 18-inch Muck Train and Duplicate Rolls
1 Large Engine, 32 x 42, horizontal, 20-ton fly, doubly braced wheel, 12 in. face
1 Large Rotary Squeezer for 150-lb Ball.
1 Large Roll Turning Lathe for Turning up Rolls.
1 Large Pump.
2 Large Cranes for Handling Housings and Rolls.
1 Plate Shear to shear as high as ¾-in Plates.
1 Sheet Shear.
1 Shaping Shear.
1 Muck Shear.
1 Scrap Shear.
1 Scrap Shear and Engine.
1 Large Sturtevant Blower and Pipe.

Furnace Plates for 4 Charcoal Fires, including Valves, &c.

1 Battery of 3 extra flange Fire-box Boilers; size 28 ft. by 48 in; 2-flue, 16 in., to operate together or separate; with all connections.
1 Large Boiler, fire-box metal, 28 ft. by 42 in. or 44 in.
4 Small Boilers, 22 ft. by 42 in.
1 Track Scale, Wagon Scale, Mill Scales, Tools, Tramways, Buggies, Patterns, &c.

Address

PLATE & BAR MILL CO., Room 28, 187 and 189 Dearborn St., Chicago, Ill.

For Sale.

The present works now owned by us in the city of Reading, Pa., consisting of Foundry, Machine Shops and all the necessary outbuildings required for manufacturing Hardware or any other line of business in iron goods. Owing to the large increase in our business, we are compelled to move to larger quarters, and have purchased 14 acres of land in Reading for that purpose. Everything in first-class condition. Will sell some machinery if required. A splendid chance for investment, as property is increasing in value here very rapidly. We believe that Reading posesses facilities for manufacturing purposes superior to all other points in the United States, and our three years' experience here, with the large increase in our business, is a good test of that fact.

Address MANHATTAN HARDWARE CO., Reading, Pa

For sale.

Second-hand

DROPS and LIFTERS.

BEECHER & PECK,

Lock Box 222, New Haven, Conn.

FOR SALE.

Williamson Double Hoister, ten-inch cylinder; three large Forster Crushers; 14 x 14 Vertical Engine; 10 x 20 Horizontal Engine. Good as new.

A. G. BROOKS, 261 N. Third Street, Phila.

MEYER, KINGSLAND & CO.,

Wholesale Auctioneers,

No. 10 Warren St., New York.

Regular sales of Hardware, Cutlery, &c. Sales cashed promptly. Consignments of goods solicited.

59 DUANE ST.

We have rented the above-named building in New York City for a salesroom and branch factory, and shall be glad to see all our old friends and patrons, as well as any in need of anything in our line. Dies a specialty.

THE STILES & PARKER PRESS CO., Middletown, Conn.

Vulcan Works Baltimore, Md.

This old-established Foundry and Machine Shop for sale or lease. Has a complete equipment in all departments. Tools for sale. Send for catalogue. Address as above.

NOTICE.—M. V. Smith has no longer any connection whatever with the Tyrone Furnace Company; he has no interest in the M. V. Smith's Regenerative Gas Furnace Patents, nor any authority to use them or any improvements made to the same by him. All persons are hereby cautioned against purchasing or contracting with said M. V. Smith for the use of said patents or any part thereof. Licenses to use said Furnaces can be obtained only from the undersigned.

TYRONE FURNACE CO., June 17th, 1885. Tyrone, Pa.

TO MAKE room for larger tool, will sell cheap for cash, a Planer, 42 in. x 42 in. x 12 ft.; in good order. Address P. O. BOX 2085, Bridgeport, Conn.

Trade Report.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, July 29, 1885.

Scotch Pig.—The market is a little steadier. We quote makers' brands as follows:

Coltness, alongside, Glasgow			48/6
Langloan,	"	"	47/6
Gartsherrie,	"	"	47/6
Summerlee,	"	"	47/6
Carnbroe,	"	"	46/ @ 46/6
Glengarnock,	"	Ardrossan	46/ @ 46/6
Eglinton,	"	"	41/
Dalmellington,	"	"	43/
Shotts,	"	at Leith	48/6

Lighterage from Ardrossan to Glasgow is 1/ ₱ ton.

Cleveland Pig—Is a little steadier. We continue quotations, f.o.b. shipping ports:

Middlesboro, No. 1 Foundry			36/6
"	No. 2	"	35/
"	No. 3	"	32/6

Bessemer Pig—Is unchanged. W. C. Hematites are quoted 43/ for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. shipping ports.

Manufactured Iron.—The market is irregular. We quote at works:

		£	s.	d.	£	s.	d.
Staff. Ord.	Marked Bars	7	10	0	@	.....	
"	Medium "	6	0	0	@	6	10	0
"	Common "	5	10	0	@	5	15	0
Hoops, 20 W. G. and over.							
"	Common Best	6	15	0	@	.....	
"	Medium	6	5	0	@	6	10	0
"	Common	6	0	0	@	6	7	6
Sheets, 20 W. G. and under.							
"	Ordinary Best	7	15	0	@	8	5	0
"	Common	7	5	0	@	7	15	0

Steel Rails—Are unchanged. We quote £4. 15/, f.o.b. shipping ports.

Old Rails—Are unchanged. We quote Old D. H's, c.i.f. New York, £3 @ £3. 2/6.

Scrap.—The market is unchanged. We quote Heavy Wrought £2. 10/ @ £2. 15/, c.i.f. New York.

Copper.—The market is a little steadier. We quote Best Selected, £48. 10/ @ £49. 10/, and Chili Bars, £43. 15/ @ £44. 5/.

Tin.—The market is unchanged. Straits Tin, spot, is quoted £94 @ £94. 10/, and futures £93 @ £93. 10/

Tin Plates—Are unchanged. We quote:

Tin Plates, 10x14,	1st qual.	Charcoal		19/6 @ 21/6
"	"	2d	"	18/6 @ 19/
"	"	1st	" Coke	17/6 @ 18/
"	"	2d	"	14/ @ 14/6

Spelter.—The market is unchanged. We quote Ordinary at shipping ports, £13. 7/6 @ £13. 15/.

Lead—Is quiet. We quote Common English Pig, £12. 12/6.

Freights.—Steam from Glasgow to New York, 1/ @ 2/.

Financial.

Office of *The Iron Age*,
WEDNESDAY EVENING, July 29, 1885.

Two special events signalize the week under review—first, the announcement of a final solutionof the West Shore imbroglio; second, the transfer of several millions in gold from the Associated Banks of New York in aid of the National Treasury, thus tiding over the lately impending silver crisis. The former imparts unwonted stability to certain classes of railway property in the stock market, and by a reflex influence, or through sympathy, various other interests receive an impetus. Reasons for growing confidence exist in the simple fact that an event pregnant with pernicious consequences as concerns matters of trade and finance has passed without a ripple of disturbance. Better yet, the harmonious co-operation of the banks and the Treasury, with the single object of maintaining a gold standard in the national currency until Congress shall carry into effect measures of relief, conveys a welcome assurance that the varied currents of trade will continue to flow peacefully in their natural channels. The agreement on the part of the banks was made public by the following circular on Tuesday morning:

NEW YORK CLEARING HOUSE,
No. 14 PINE STREET, NEW YORK, July 25, 1885.

SIR.—The Clearing House committee, as authorized at a meeting of bank officers held on the 13th inst., having made an apportionment of $6,000,000 among the banks *pro rata* to net deposits, request you to deposit with the Clearing House committee, at the office of the Assistant Treasurer of the United States, in gold or gold certificates, the amount apportioned to your bank, viz., $——, on Tuesday, the 28th inst., between the hours of 11 o'clock a. m. and 2 o'clock p. m., when you will receive certificates for a like amount, to be held by you until further notice. Said certificates can be counted part of your legal reserve, as per decision of the Comptroller of the Currency.

WILLIAM DOWD,
Chairman Clearing House Committee.

The draft upon each bank to make up the $6,000,000 is moderate, inasmuch as the total deposits in all the banks are about $380,000,000, and there are 64 banks among which the $6,000,000 is to be divided. The subsidiary silver coin which the Clearing House committee thus receives in exchange from the Sub-Treasury is not to be sent at once to the banks, but will remain in the possession and under the control of the Clearing House committee, who will distribute the siver from time to time wherever there may be an opportunity to put it in circulation.

On the Stock Exchange the past week has been one of unusual excitement, some of the leading bulls apparently seeing their opportunity to realize profits. Under the pressure to sell, varied by occasional reactions, prices have been irregular. New Jersey Central throughout figured conspicuously, affecting the Vanderbilts and grangers. Reports that Vanderbilt had obtained a virtual control of West Shore were eagerly availed of both by buyers and sellers, but the comparative stagnation in Gould stocks excited suspicion that the market had lost its principal support. Both on Friday and Saturday the Gould shares were weak, from which it was inferred that the same parties lately favoring a rise were now interested in a decline. On Monday the market was again strong, although the proposals submitted by Drexel, Morgan & Co. to the West Shore bondholders showed that the reports of Vanderbilt's complete success were at least premature. On Tuesday the market was irregular on conflicting rumors, but closed at an advance. To-day prices were feverish and unsettled.

United States bonds closed as follows:

	Bid.	Asked.
U. S. 3 per cents	103¼	—
U. S. 4½s, 1891, coupon	112¾	112⅞
U. S. 4s, 1907, coupon	122¾	122⅞
U. S. Currency 6s, 1895	127	—
U. S. Currency 6s, 1896	129¼	—
U. S. Currency 6s, 1897	131¾	—
U. S. Currency 6s, 1898	133¾	—
U. S. Currency 6s, 1899	135¾	—

In reference to the West Shore reorganization, Drexel, Morgan & Co. announce that the New York Central have executed a contract with their banking firm, agreeing to take possession of the property under a lease, and to guarantee the principal and 4 % interest of a new mortgage upon the line limited to $50,000,000. Capital stock to the amount of $10,000,000 is also to be issued. The bonds are to mature at the expiration of the lease—say, in 475 years—or upon default of interest for two consecutive years. Of this new mortgage $25,000,000 are offered in exchange for the present $50,000,000 mortgage with past due coupons attached, and the remaining $25,000,000, except such amount as may be necessary for reorganization, shall not be issued except at the request of the New York Central and Hudson River Railroad Company, to provide for prior liens, necessary terminals, &c. The above proposition is submitted to the bondholders. As there are many interests to be consulted and harmonized, the scheme is likely to meet with unexpected hindrances. Even should freight rates be restored, it does not follow that trunk-line difficulties will at once disappear, since there are many low-rate contracts outstanding and competing routes to the seaboard.

Trade reports from various directions reflect the more cheerful tone lately noted, mainly due to the promise of abundant crops, but, as a rule, business is dull. The first bale of new cotton from Texas has been marketed, and is believed to be the harbinger of 7,500,000 bales—an increase of nearly 1,750,000 over last year's production, and, with the exception of winter wheat, all other crops promise an excess compared with 1884. At the same time the grain situation West is anomalous, the new 20¢ tariff having seriously checked shipments, and this despite the fact that storage space for a new crop will soon be imperatively demanded. At present prices there is practically no export demand. Last week the decline in this market was about 3¢ ₱ bushel. The leading provision markets are quiet and steady.

Rates for bankers' sterling were reduced to $4.85½ @ $4.87. In London money is dearer, and an advance in the bank rate on Thursday is expected.

The creditors of the defunct Wall Street Bank have been paid in full.

The Clearing House exchanges in leading cities throughout the country show an increase of 15½ %, compared with the corresponding week last year; outside of New York an increase of 4 %. Gains are shown at nearly all the principal cities. New York gains 20½ %; Boston, 10; Chicago, 15½; St. Louis, 10; San Francisco, 14; Kansas City, 11½. Philadelphia decreased 6 %; Baltimore, 13½; Cincinnati, 8½; Pittsburgh, 9. Though the totals fall behind what they have been for some weeks previous, the exhibit is favorable.

The weekly bank statement showed no striking changes, the only significant movement being the continued loss in specie. In loans there was an increase of $485,500, which, considering the activity of the stock market, was smaller than anticipated. The surplus reserve now stands at $64,343,175, in comparison with $30,628,125 the same time last year. In the money market rates of interest are near the lowest point, but there is an indisposition on the part of the banks to accept long-date paper, preferring that their funds should remain idle rather than forego the chance of remunerative rates later in the season.

It is announced that Govenor Hill will issue a proclamation declaring the day of General Grant's funeral to be a legal holiday in the State.

The total imports at this port for the week are $923,000 above those of the previous week, the valuation being $8,272,022, of which $2,361,254 represents dry goods. The aggregate since January 1 is $217,522,852, as compared with $254,345,055 for the corresponding period last year. The exports exclusive of specie were $871,152 below those of the previous week, the total being $5,252,371, making the aggregate since January 1 $190,311,249, as compared with $179,157,717 for the same time in 1884. Included were 236,979 bushels wheat, 485,032 bushels corn, 6314 bales cotton, 6,717,103 gallons petroleum, 3,753,137 lb cut meats and 2,284,002 lb lard. According to the Custom House report the exports of specie and bullion from this port for the week were $347,755, mostly in American silver bars for London, making a total of nearly $16,500,000 since January 1, as against $45,634,000 for the same time in 1884. The imports of specie for the week were $347,582, mostly in foreign gold from Havre and Bremen.

Metal Market.

Copper.—This being about the dullest season of the year, very little has transpired in the way of sales in our Copper market. People wishing to sell Lake Copper in the open market were unable to get over 11⅛ ¢ for it, while purchasers had to pay 11½ ¢. We quote Calumet and Hecla, 11½ ¢; Electrolytic, 11 ¢; Baltimore, $10.35 @ $10.40; Orford, $10.30; Arizona, good brands, 10⅞¢ @ 11 ¢. During the week the Bell mine of Montana, whose annual production was 4,000,000 lb of copper, was closed by the sheriff. A large fall trade is expected in Copper, and likely to set in toward the close of next month or the beginning of September. Chili Bars rose from £43. 15/ on July 23 to £43. 17/6 the next day, and £44. 5/ on Saturday, but this week opened at £44. 2/6, in order to recede to £43. 17/6 yesterday, and finally this morning return to the starting point of £43. 15/, Best Selected meanwhile not varying from £49. Manufactures may be nominally quoted: Bottoms, 18¢; Braziers, 17¼¢; Sheathing, 16¢, and Bolt Copper, 18¢. We are cabled from London this morning that the market is a little steadier, with no quotable change in prices.

Tin.—London showing growing weakness and giving way to £94 for spot Straits, and £93 for three months, we have been tending downward rather fast, landing at 22⅛¢ for spot Straits, 21⅞¢ for July, 21⅛¢ for August, 20⅞¢ for September, and 21¢ for October-November-December. The copious arrivals of Banca selling at low prices begin to affect the value of Straits Tin. We are cabled from London that the market is unchanged. *Tin Plates.*—The market has remained very quiet; there has been but comparatively little doing, and the trade in plates may be called moderate at the ensuing quotations for large lines, ordinary brands, ₱ box: Charcoal Bright, $5 @ $5.62½; do. Ternes, $4.62½ @ $4.75; and Coke Tin, $4.60 @ $4.65. Meanwhile Liverpool has been very firm, Charcoal at 16/ @ 18/, and Coke Tin at 14/3 @ 14/6. At the recent quarterly meeting held at Swansea 300 works were represented, or more than three-quarters of the whole Welsh works, the substance of the agreement being to stop work during a six-month one week per month against a bonification of £500 per works. The agreement went into operation on July 6, it having been agreed, further, not to work from 4 o'clock on Saturday afternoon of each week till 6 o'clock a. m. on Monday. Another stipulation agreed to was that no new works are to commence operations during the six months nor any now idle be revived. Some of the mills which have not actually joined the combination have agreed to adopt the same course for two or three months, if not longer. From London we are told that the market is without change.

Lead.—Sales figure up for the week between 900 and 1000 tons, at $4.10 @ $4.15, gone into consumption, except 100 tons bought at $4.15 by the chief operator, who so far seems to have benefited only other parties by his speculation for a rise. The market closes flat at $4.15 for both Common and Refined; for the latter this price was offered yesterday. St. Louis is steady at 4¢ for both. Soft Spanish has remained unaltered in London, £12. 10/. Manufactures are quoted as follows: Lead Pipe, 5¾¢ ₱ lb; Sheet Lead, 6¼¢; Tin-Lined Lead Pipe, 15¢, and Block-Tin Pipe, 40¢, allowing in trade for Old Lead delivered in New York, 3¢ ₱ lb. Shot, Drop, 6¢; Buck, 7¢; Chilled, 7¢. Shot in 5-lb bags, 1¢ ₱ lb extra. Our cablegram from London states that the market is quiet.

Spelter and Zinc.—Our market has been quiet and steady at $4.40 @ $4.50 for Common Domestic, without any further developments of interest. At Breslau, in Silesia, middle of July, the leading Silesian, Rhenish and Belgian Spelter producers held a general meeting, the purpose of which was to stop, if possible, the drooping tendency in the Spelter markets of Europe. It was proposed to fix a general minimum price, below which none of the works should sell during coming months, but this proposition met with no favor, whereas the stipulation not to increase production during coming three to five years beyond a certain maximum met with unanimous approval and assent, and each of the producers present was ready to guarantee this item, so far as he himself was concerned. Unfortunately the meeting had counted without a leading producer not represented, and when afterward the resolution was submitted to him all persuasion was in vain, and he declined acceding to it. This upset the whole agreement, and since then producers on the Continent have been pondering over the matter in hopes of arriving at some practical plan, so far not apparent. We quote Silesian, 4¼¢, and Bertha Refined, 7¾¢ @ 8¢. The London market remains steady, £13. 15/. *Sheet Zinc* is in moderate request at $4.95 @ $5.10, Domestic. From London we are cabled that the market is unchanged.

Antimony—Has been steady at 9¾¢ @ 10¢, Cookson, and 9¢ @ 9¼¢, Hallett. The latter remains £37 in London.

Coal Market.

Dull and unchanged are two words which describe the condition of the Anthracite trade to-day, as compared with several weeks gone. New orders are very scarce and given only as necessity compels. Among the operators the feeling is general discomfort, but relief is found in a slight expected improvement in August and possibly a general awakening in September. The discussions respecting a reduced allotment for the coming month thus far results in nothing definite, and in regard to prices there are no indications of change. The Schuylkill collieries will be worked on full time through the coming month. Quotations of current transactions are about as follows: Stove, $3.65 @ $3.90; Chestnut, $3.25 @ $3.50, and Pea, $2 @ $2.25, alongside.

The total amount of Anthracite Coal sent to market for the week ending July 18, as reported by the several carrying companies, was 753,982 tons, compared with 113,598 tons in the corresponding week last year, an increase of 640,384 tons. The total amount of Anthracite mined thus far in the year 1885 is 14,569,176 tons, compared with 14,385,620 tons for the same period last year, an increase of 183,556 tons.

The Bituminous trade, as for months past, is dull at the lowest prices, generally quoted about $2.85 @ $3. Eastern freights are moderate.

The Bituminous Coal Producers' Association of Western Pennsylvania have decided to dissolve the Soft-Coal pool which has been in existence some months, and notice will be given to this effect.

The Reading Coal and Iron Company propose to advance on August 1 their prices for White Ash Coal, as follows: 15¢ ₱ ton on Chestnut, 20¢ on Egg and Broken, and 10¢ on Stove and Small Stove. The prices at Schuylkill Haven will then be: $2.50 ₱ ton for Chestnut, Egg and Broken, and $2.75 for Stove and Small Stove.

Cincinnati.

JULY 27, 1885.—*Pig Iron.*—Some increased inquiry during the past week gives hope of speedy transactions of considerable magnitude. Sales of round lots of Southern brands are reported for present and future delivery at full quoted prices. These Irons are to supply parties who have entered contracts for delivery of castings through the year. It is thought that there is a little better feeling all around in the Iron trade, yet not enough to affect prices. Quotations of sales of small and larger lots:

CHARCOAL FOUNDRY.	
Hanging Rock, No. 1, 4 mos	$20.00 @ 21.00
Southern, No. 1. cash	$17.50 @ 18.00
Southern, No. 2, cash	16.50 @ ....
Southern, No. 3, cash	15.50 @ ....
COKE FOUNDRY.	
Ohio and West Pennsylvania, No. 1, 4 mos	17.00 @ 18.50
Ohio and West Pennsylvania, No. 2, 4 mos	16.00 @ 17.50
Southern, No. 1. cash	15.50 @ 16.00
Southern, No. 2, cash	14.75 @ 15.00
SILVER-GRAY SOFTENERS AND FLUXERS.	
Hanging Rock (Jackson County), No. 1, 4 mos	17.50 @ ...
Hanging Rock (Jackson County), B 1, 4 mos	16.50 @ ....
Hanging Rock (Jackson County), No. 2, 4 mos	15.50 @ 16.00
Hanging Rock (Jackson County), No. 3, 4 mos	14.75 @ 15.00
Other makes, 4 mos	13.50 @ 15.00
CAR WHEEL.	
Hanging Rock, Cold-Blast 4 mos	23.00 @ 25.50
Hanging Rock, Warm-Blast, 4 mos.	19.00 @ 21.00
Southern Warm-Blast, cash	16.00 @ 17.00
Southern Standard Warm-Blast, cash	23.00 @ 25.00
FORGE.	
Charcoal	15.50 @ 19.00
Coke	13.00 @ 14.00
Stonecoal	12.50 @ 13.00
Hanging Rock Stonecoal	14.50 @ 15.50
SCRAP.	
Wheels	14.00 @ 15.00
Rails	16.50 @ 18.00
Heavy Wrought, ₱ 100 lb	.65 @ .75
Medium, ₱ 100 lb	.60 @ .65
Light, ₱ 100 lb	.45 @ .60
Heavy Cast, ₱ 100 lb	.50 @ .60
Medium, ₱ 100 lb	.40 @ .50
Light, ₱ 100 lb	.35 @ .45

Above quotations on Pig Iron are f.o.b. here; prices at furnaces are less the freight to Cincinnati. Prices quoted on four months' will be 50¢ less for cash.

Tests of Aluminium Bronze.—The Cowles Electric Smelting and Aluminium Company turned out last week a batch of exceptionally good 10 per cent. aluminium bronze, which was manufactured for the Ansonia Brass and Copper Company, and weighed about 130 pounds. The first pig weighed 35.5 pounds and had an average tensile strength of 79,935 pounds per square inch. The second, which weighed over 40 pounds, averaged 88,587 pounds, and the third, which weighed about 56 pounds, showed a tensile strength of 99,931 pounds, the highest result obtained for aluminium bronze. All the tests were made of castings on a Tinius Olsen machine. We are informed that the pigs exhibited little or no shrinkage. The Company quote their alloys in ingots as follows:

	Per pound.
10 per cent. aluminium bronze	$1.00
7 per cent. aluminium bronze	.78
5 per cent. aluminium bronze	.56
2.5 per cent. aluminium bronze	.34
1.25 per cent. aluminium bronze	.22
No. 1 aluminium silver or Hercules metal	.75
No. 2 aluminium silver	.60

Trade Report.

New York Iron Market.

American Pig.—Business is practically unchanged. Buyers call only for small lots, and low offers do not tempt them. We hear of some sales on this market of lots of Ohio No. 1 Foundry Irons at $17, some of which are acknowledged to be of very good quality, but under prevailing conditions even the best brands, if unknown, fail to obtain recognition from buyers. Outside brands continue weak, while standard brands, notably of No. 1 Foundry, are fairly well maintained at our quotations for moderate lots. We hear of offerings of lower grades of No. 2 Southern at very low figures. We quote standard brands of Lehigh and North River Irons, tidewater delivery, nominally as follows: No. 1 X Foundry, $17.50 @ $18.50; No. 2 X Foundry, $16 @ $16.50; Gray Forge, $15.25 @ $16; the outside figure is asked for special brands. Outside brands sell for 50¢ @ $1 less than our quotations. We discuss the returns of the Iron and Steel Association editorially.

Scotch Pig.—Advices from the other side are firmer, and freights are stiffer. The only effect which any marked movement in that direction is likely to have is to further curtail business here. Low figures continue to be made for effect. Nominal quotations for 5 and 10 ton lots are as follows: Coltness, $20 to arrive; Gartsherrie, $20 to arrive; Shotts, $20 @ $20.50 to arrive, $21 from yard; Carnbroe and Glengarnock, $19 to arrive; Summerlee, $19.50 @ $20 to arrive; Dalmellington, $18.50 to arrive; Eglinton, $18 to arrive; Clyde, $19 to arrive. Concessions are made for larger lots and for sales from dock.

Bessemer Pig and Spiegeleisen.—There is no demand, and the market has been without any features. We quote: Foreign Spiegeleisen, 20 %, nominally $25.50, 10 % $21.50 @ $21.75, 45 % $42, 60 % $52.50, and 80 % $70.50. Foreign Bessemer is nominally $18.50 @ $19. American Bessemer Pig is quiet. We quote $15 @ $16 at furnace for the average of the grades, according to quality.

Bar Iron.—The trade drags along in this market, the demand being slow and prices unsatisfactory. We quote for delivery here in round lots: Common Iron, 1.45¢ @ 1.55¢; Medium, 1.55¢ @ 1.65¢, and Refined Iron, 1.7¢ @ 1.9¢, the lower figures being occasionally shaded. Store prices are 1.6¢ @ 1.75¢ for Common, 1.75¢ @ 1.8¢ for Medium and 1.85¢ @ 2¢ for Refined. The hot weather will probably lead to the temporary closing of a number of mills. Swedish Iron is quoted $70 a ton, and Imported Nail Rods at $77.50 @ $81, ex-ship, according to quality, in large lines.

Structural and Shaped Iron.—A moderate current business is reported in Beams. Some of the mills are asking a little more for Angles, but there are enough sellers at old quotations to cause this to have any effect on the market for the present. The Brooklyn cable road has been served with an injunction, and the Ironwork for it, aggregating about 7000 tons, will not be given out for some months to come. Work on the foundations has, however, been taken in hand. Angles may be quoted nominally 1.9¢ @ 2.1¢, delivered, for round lots, and Tees at 2.25¢ @ 2.4¢. Store quotations remain 2.2¢ @ 2.4¢ for Angles, and 2.5¢ @ 2.7¢ for Tees. American Beams and Channels are 3¢ base from dock for all orders. Some small lots of German Beams have been placed.

Plates.—Some round lots of Bridge Plates have been placed at concessions. Usual prices for small lots of Iron Plates are as follows: Common or Tank, 2 @ 2.1¢; Refined, 2¼¢ @ 2⅜¢; Shell, 2.4¢ @ 2½¢; Flange, 3.4¢ @ 3½¢; Extra Flange, 4¢ @ 4¼¢, with concessions for large lines. For small lots of Steel Plates the quotations are as follows: Ship, 3¢ on dock; Tank, 2¼¢ on dock; Boiler, 3¢ @ 3¼¢ for Shell, 3½¢ @ 4¢ for Flange, and 4¢ @ 5½¢ for Extra Flange and Fire-Box.

Merchant Steel.—Quotations for the range from ordinary to good grades are as follows: American Tool Steel, 7½¢ @ 10¢; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; Crucible Machinery, 4.5¢ @ 6¢; Spring and Tire, 2½¢ @ 2¼¢; Open-Hearth Machinery, 2¼¢ @ 2¾¢, and Bessemer Machinery, 2½¢ @ 2½¢; English Tool, 13½¢ @ 15½¢.

Steel Rails.—During the week the Cairo and Vincennes Railroad have purchased 10,000 tons at a shade under $27. 5000 tons for early delivery going to an Eastern mill and 5000 tons for later delivery to a Western mill. The East Tennessee, Virginia & Georgia Railroad have taken 5000 tons from a Pennsylvania mill, and a number of additional small lots are reported, with rumors of other transactions. There are a number of additional large lots now in the market. We quote nominally $27 at mill. The engine of the Joliet Steel Company has broken down.

Steel Wire Rods.—One or two sales of moderate lots are reported at private terms. Some of the importers do not quote lower than $40 50, others go as low as $39.50. We quote $39.50 @ $40.50 for early delivery.

Old Rails.—The market is weak. Offerings are heavy in the aggregate, round lots from the South and West seeking purchasers at $16. Some holders are offering as low as $15.50. We note a sale of 100 tons at $16.

Old Wheels.—The lot of 1000 tons of miscellaneous Old Material from Colon, including Wheels and Axles attached, and Wrought Scrap, has been placed at $14.50 for the whole lot.

Scrap.—With the exception of a few cargoes at concessions, nothing has been done. We quote nominally $18 @ $18.50.

Rail Fastenings.—A round lot of Spikes, delivered at San Antonio, has been placed at a low figure. Quotations for large lots are 2.55¢ @ 2.65¢ for Bolts and Square Nuts; 2 75¢ @ 3¢ for Bolts and Hexagon Nuts, and 1.55¢ @ 1.7¢ for Splice Bars. Railroad Spikes are quoted 1.85¢ @ 1.9¢.

Messrs. Naylor & Co., of 99 and 101 John street, this city, are about to announce to the trade that as representatives of Naylor, Benzon & Co., of London, and of Poingdester & Mesnier, of London, they have appointed Messrs. William R. Hart & Co., of 224 South Third street, Philadelphia, as sole selling agents of the following Iron Ores: Elba, Marbella, Mokta, Tafna and Porman. We understand that the firm in question have the exclusive right to handle the Elba Ore in the American market for three years, and that they have made similar arrangements so far as the Marbella Ore is concerned for one year.

Metal Exchange.

The following transactions are reported:

FRIDAY, July 24.

10 tons Tin, September	22.15¢

TUESDAY, July 28.

12,500 lb. Lake Copper, spot	11.15¢
10 tons Lead, August	4.10¢

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, July 28, 1885.

Pig Iron.—There is nothing to note except extreme dullness, the disposition to place orders being as backward as ever. The pressure to sell is a little stronger, if anything, so that it is difficult to maintain prices, particularly on grades that are in somewhat plentiful supply. Good No. 1 Foundry Iron is nowhere plentiful, and in some cases is rather scarce; hence a degree of firmness which is entirely lacking in No. 2 and grades below that. Mill Irons of all descriptions are in full supply; in some cases there is a marked superabundance, so that prices are irregular and anything but firm. The weakness in this class of Iron affects the whole market, and, without some decided increase in consumption, it will be useless to look for improvement in prices. So far as can be ascertained, there is nothing to indicate any change of that kind at present, although in a few isolated cases a better demand is reported. Taking the market as a whole, however, it is difficult to find anything particularly encouraging, and there is too much reason to fear that the depression has not yet run its full course, although business men carefully watch the course of events, so as to be prepared for the change, which, in any event, cannot be very long delayed. Meanwhile prices show a very wide range, say from $17 to $18 at tide for No. 1 Foundry; $16 @ $16.50 for No. 2, and $15 @ $15.50 for Gray Forge. Alabama Irons can be had at from $14 upward, and on firm offers for large lots it is not unlikely that $14 could be shaded a little. Bids for large lots are hard to secure, however, so that in the absence of sales the figures above quoted are as near the market as can be given.

Foreign Iron.—There has been some little demand for special brands of Bessemer, such as Ulverstone, Cleator and Ridsdale. Sales have been made at from $19 to $20.25 at tide, according to quantity, brand, &c. Other articles as last quoted, viz.: Ordinary Bessemer, $18 @ $18.50, and 20 % Speigel $25 @ $25.50.

Muck Bars.—There is a moderate demand at $27 @ $27.50, delivered, for best makes. Inferior qualities dull at $25.50 @ $26.

Blooms.—Asking figures about as follows: Soft Basic Blooms, $33.50 @ $35; Billets, $38 @ $39, and Siemens-Martin, $40 @ $42; extra quality, $43 @ $45; Domestic Blooms, $30.50 @ $32, delivered, for Nail Plate, and $35 @ $36 for Plate and Sheet Blooms. Charcoal Blooms, $50 @ $52; Run-out Anthracite, $43 @ $44; Scrap Blooms, $34 @ $35; Northern Ore Blooms, $34.

Bar Iron.—There has been a little more inquiry, and possibly a slight increase in the volume of business, but without any improvement in prices. Some very fair orders have been offered from points in the West, but it has been difficult to meet their prices, although it has been done in several instances. The local demand is limited, and, without outside business it would be very difficult to keep the mills employed. So far they have managed to run pretty steadily at from one-half to two-thirds their capacity, and, although the outlook is by no means encouraging, it is hoped that there will be no falling off, even if there is no improvement. Prices continue weak and irregular at from 1.4¢ to 1.5¢ for Common qualities, and 1.65¢ @ 1.75¢ for Good to Best Refined. Skelp Iron is quiet with sellers at 1.75¢.

Plate and Tank Iron.—There is only a fair demand, and many of the orders offered are at such low figures that they cannot be filled. The demand is largely from the West, so that prices have to be made in competition with mills in that section, which, with freight added, leaves no margin whatever to the manufacturer. Still they are all anxious to keep their mills employed, and in the hope of an early improvement are willing to work very close until that time comes. Prices nominally as follows: Ordinary Plate, 1.9¢ @ 2¢; Tank, 2¢ @ 2.05¢; Shell, 2.5¢; Flange, 3.5¢; Fire-Box, 4.25¢; Steel Plates, Flange, 3.5¢ @ 3.75¢; Fire-Box, 4¢ @ 4.25¢.

Structural Iron.—A tolerably steady flow of small orders is reported, the aggregate for the past two or three weeks being decidedly larger than the output, so that with more orders on their books manufacturers feel somewhat encouraged. There is also a considerable amount of business to come on the market before the close of the year, so that continued activity seems pretty well assured for the present. Prices show no improvement, however, and in some cases have been quoted a shade lower, but ordinary rates are about as follows, say, 1.9¢ @ 2.1¢ for Plates and Angles, 2.2¢ @ 2.3¢ for Tees, and 3¢ for Beams and Channels.

Sheet Iron.—There is no improvement to notice in this department, either in the volume of business or in prices. Manufacturers are carrying larger stocks than usual at this season, and, in the endeavor to find a market, prices are badly demoralized, and on good-sized lots extremely low figures have been quoted. Small lots are sold at about the following figures:

Best Refined, Nos. 26, 27 and 28	3¼¢
Best Refined, Nos. 18 to 25	3¼¢
Common, ¼¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28	5 ¢
Best Bloom Sheets, Nos. 22 to 25	4½¢
Best Bloom Sheets, Nos. 16 to 21	4 ¢
Blue Annealed	2.5¢
Best Bloom, Galvanized, discount	60 %
Second quality, discount	62½ %
Common, discount	65 %

Nails.—The improvement noted last week continues, and, while the market can hardly be characterized as active, there is a fair demand. The movement however, is in most cases confined to small lots. Inquiries from the South and West are said to be still upon the market, but it does not appear that much actual business has resulted from those reported a week ago. Prices rule from $2.15 to $2.25 for Iron Nails, according to size of order.

Wrought-Iron Pipe.—The demand for Pipe remains much in the same proportions as noted for several weeks past, and, on the whole, perhaps is about as good as can be expected at this season of the year. A slight advance has been made on Lap-Welded Black Pipe, which is now quoted 62½ @ 65 % off list prices. The remaining articles on the list are unchanged at the following discounts: Butt-Welded Black Pipe, 45 @ 47½ %; Butt-Welded Galvanized, 35 @ 37½ %; Lap-Welded Galvanized, 45 @ 47½ %; Boiler Tubes, 57½ @ 60 %. Messrs. Morris, Tasker & Co.'s Pipe works has been closed for over a week, owing to the refusal of the men to work unless at an advance on the present scale of wages.

Steel Rails.—There is rather more inquiry, and a probability of several large orders coming on the market in course of a few weeks. Deliveries will be required at points in the West or South, so that most of the mills in Pennsylvania will be likely to bid on some, if not all, of the lots. Prices are now quoted at $27 @ $27.50 at mill, and, as orders are tolerably numerous, it is thought that these prices ought to be maintained, but in competition for large orders it will be difficult to avoid making concessions. Meanwhile sales, so far as known, have been at the figures above named, which will likely continue in all ordinary transactions.

Old Rails.—The market is dull, and, under somewhat more liberal offerings, prices are easier. There are buyers at $17, Philadelphia, and $17.25 @ $17.50 at points within a radius of 50 miles from that point, but sellers are unwilling to meet these figures, and ask from 25¢ to 50¢ ℔ ton more money. Business is slow, however, and the market in buyers' favor.

Scrap Iron.—Demand very slow, and prices irregular and weak, at about the following figures asked: No. 1 Wrought Scrap, $17 @ $17.50; No. 2 do., $12 @ $13; Horse Shoes, $22 @ $23; Turnings, $13 @ $14; Old Car Wheels, $14 @ $15; Old Steel Rails, $16; Fish Plates, $22 @ $23; Cast Scrap, $13 @ $13.50; do. Turnings, $9 @ $10.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Avenue, PITTSBURGH, Pa., July 28, 1885.

There has been no change in the business situation here. The best that can be said is that it is no worse. Some have an idea that we are about to experience a rapid change, but the general belief is that trade is likely to continue of a limited hand-to-mouth character during the rest of the year. There is nothing new to note in connection with the labor situation. The Nail strike is apparently no nearer an adjustment than it was a month ago. Both sides appear indifferent, and some of the manufacturers express the belief that it would be better for all concerned if the machines were kept idle until the 1st of September. No conference has been held as yet in regard to the Sheet-Iron scale and the Old Rail clause. Some of the Western papers continue to have a good deal to say in regard to the formation of a new Iron manufacturers' association by mills west of Pittsburgh. No one questions the right of these dissatisfied mill owners to form an association of their own, but a good many doubt the wisdom of such a movement. A number of the firms represented at the Cincinnati conference have not as yet notified the secretary of their withdrawal, and, while such a scheme may still be projected, it has not yet assumed definite shape. All branches of the Glass trade, with the exception of Fruit Jars, continue quiet, but some manufacturers talk hopefully in regard to the immediate future.

Iron Ore.—The Ore trade, so far as our market is concerned, continues very dull, and there is but little prospect at present of any immediate change for the better. The consumption hereabouts continues on a very limited scale; but few of the furnaces are in blast, and those in operation are buying no more than they can possibly avoid. Advices from Cleveland say it is expected that the output of the Lake Superior mines will fall about 2,000,000 tons short this season.

Pig Iron.—There has been no important change in the situation during the past week; furnacemen and furnace agents continue to report the market about as bad as it can be, and some of them think the next turn will be for the better. We hear of a number of producers who are unwilling to meet ruling prices, which, under the most favorable circumstances, scarcely cover actual cost of production. An increased demand is not improbable within the next week or two, as consumers generally are low in stock, and some of them, it is said, feel like anticipating future wants, being apprehensive that there might possibly be an advance. It is worthy of mention that but very good makes of Iron are being offered here from a distance at present prices, as the makers thereof can do better at or nearer home. We quote as follows:

No. 1 Neutral Mill	$14.75 @	$15.00,	4 mos
No. 2 Neutral Mill	14.00 @	14.25,	4 "
All-Ore Mill	15.50 @	16.00,	4 "
White and Mottled	13.00 @	13.50,	4 "
No. 1 Foundry	16.50 @	17.00,	4 "
No. 2 Foundry	14.50 @	15.50,	4 "
No. 1 Charcoal Foundry	21.50 @	22.50,	4 "
Cold-Blast Charcoal	25.00 @	27.00,	4 "
Bessemer Iron	17.00 @	17.50,	4 "

Sales chiefly small, although we hear of negotiations pending for some round lots.

Manufactured Iron.—Some of our manufacturers report business as picking up a little, and it is hoped that orders will be more numerous and prices better next month. We continue to quote prices on a basis of 1.60¢ @ 1.65¢ for Merchant Bars—that is, for first-quality Iron, although it is said that orders have been and can be placed as low as a 1.50¢ base. There is considerable poor stock on the market, and a good many buyers prefer to pay the difference for first-quality Iron.

Nails.—There has been little or no change in the situation since our last report; trade continues quiet, orders are not plenty and mostly small, and no immediate improvement is expected either in demand or price. There was a special meeting of the Western Nail Association at Cincinnati last week, but there was nothing done of any importance. The strike still continues, and the prospect for an early termination is not apparently any better than it was a week ago; both sides are obstinate, and refuse to make concessions. The strike is a good card for Eastern manufacturers, as it will enable them to get into some of the Western markets, the cost of transportation from the seaboard to points of distribution at the West being but little more than from Pittsburgh and Wheeling. Iron Nails are still quoted at $2 10, 60 days, 2 % off for cash. Manufacturers are still obliged to buy and borrow from each other in order to supply the wants of their regular customers, as their stocks are badly broken.

Wrought-Iron Pipe.—At a general meeting of the Wrought-Iron Pipe manufacturers last week a new scale of prices was adopted, and it is confidently expected that it will be faithfully adhered to. Following are the new discounts, which in most instances show an advance. Discounts on Black Butt-Welded Pipe, in car lots, 47½ %; Galvanized do., 37½ %; less than car lots, 45 % on Black and 35 % on Galvanized; on Black Lap-Welded Pipe, in car lots, 65 %; on Galvanized do., 47½ %; less than car lots, Black, 65 %; Galvanized, 45 %. Boiler Tubes remain unchanged at 60 % off. Two-inch Line Pipe, 10¢ ℔ foot, net; 2-inch Tubing, 11¢; 8-inch Dry Pipe, 15¢; 5⅝-inch Casing, 36¢. All other grades of Casing 60 % off list.

Merchant Steel.—The demand continues light, although about all that can be expected under existing circumstances. No change in prices. Best brands Refined Cast Steel, 8½¢; do., Crucible Machinery Steel, 4½¢ @ 4¾¢; Open-Hearth and Bessemer, 2¼¢ @ 2½¢; Nail Slabs, $29 @ $30 ℔ ton.

Steel Rails—Heavy Sections for immediate delivery are still quoted at $28, cash, at mill; late fall or winter delivery, 50¢ @ $1 ℔ ton below price quoted.

Old Rails.—We can report sales of Old Iron Rails at $18 50. Consumers are trying to buy at $18, but, so far as we can learn, there have been no sales below $18.50, and brokers report that they can find no sellers under the last-named quotation. Old Steel Rails are still quoted at $16 @ $17, according to lengths.

Railway Track Supplies.—The demand for everything in this line continues light, while prices remain unchanged. Spikes, 1.90¢, delivered; Splice Bars, 1.60¢ @ 1.70¢; Track Bolts, 2.75¢ @ 2.85¢.

Old Material.—No. 1 Wrought Scrap is still quoted at $16 @ $17 ℔ net ton; Wrought Turnings, $12.50 @ $13.50; Old Car Axles, $23 @ $24; Cast Borings, $10.50 @ $11.50, gross; Old Car Wheels, $14.50 @ $15.50, gross. We are reported a sale of 100 tons at $15.50. Scrap of all kinds is getting down in price and it is very dull.

Window Glass.—Trade continues light and prices unchanged. Single Strength, in car lots, 70 and 10 %; Double Strength, 75 and 5 %.

Coke.—Blast-Furnace Coke unchanged at $1 20 ℔ ton on cars at ovens. At a meeting of the syndicate a few days ago it was decided to continue operating 60 % of the ovens five days in the week.

Chicago.

Office of *The Iron Age*, 36 and 38 Clark St., Cor. Lake St., CHICAGO, July 27, 1885.

Hardware.—There has been no demand for anything except the staple lines, among which Builders' Hardware and house-furnishing materials have been most prominent. The aggregate trade with some of the jobbers is regarded as fair for the season, while others whose consumptive territory lies in a different direction report that their business is slightly below what they have expected. In all that is said by traveling men and learned from correspondence there is nothing to discourage the jobber, so far as fall trade is concerned. Reports have been numerous from some sections of the country that crops in part would be failures, but as the harvest progresses it is learned that these reports have been exaggerated, and that in no section will there be enough falling off in crops to affect the state of trade. Jobbers are not buying very largely as yet, but are giving considerable attention to the question of lower prices by manufacturers. In several instances where these houses are nearly bare of some lines of goods, and they know that they must have them, they continue to hold off, coming no nearer to a purchase than making a bid, which is always something below the price asked by the manufacturer. As to prices to the retailer no changes are announced, and the market rules steady throughout at former prices.

Barb Wire.—There is scarcely enough Wire sold now in a week to make what might be termed a market. Semi-occasionally jobbers have an order for a ton or two from an out-of-way place, but with such exceptional sales there is very little business being done. We renew the quotation of $3.50 for Two-Point and Four-Point Painted Cattle Wire, and $3.60 for Two Point and Four-Point Hog Wire as the nominal price asked from all buyers. There are reports that Wire has been sold for less, and also that orders have been refused at these figures, but in a general way it is as near to the selling price as anything that can be given. The meeting of the manufacturers which is to occur this week is ostensibly for the purpose of advancing or paving the way to advance the price for fall trade. So far as we can learn, however, the subject is not discussed with any enthusiasm, and there are those who will advocate the postponing of this subject until later in the season. The greatest interest seems to be taken by the broker, whose profits or commission have been exceedingly small during the past year. At present prices, with an advance of 3¢ in royalty which will occur after August 1st, he sees still less opportunity of making a profit on the Wire that he may handle. Stocks in the hands of jobbers are very light, and some of them have been making efforts to duplicate orders which were placed at low figures for spring trade, but thus far makers have not been willing to make such contracts, and nearly all the mills are idle.

Nails.—There is no apparent change in the situation of the market. Iron Nails continue to be quoted at $2.30 in small lots, and $2.25, 2%, 60 days, in carload lots. It was rumored that the latter figure had been shaded to $2.15, but upon close inquiry we have been unable to discover any sales that have been made at less than our quotation. Stocks of Iron Nails in this market are so broken in sizes that it would be difficult to sell carload lots if called for, and for the reason of the broken assortment, lack of demand and no competition for trade the statement is looked upon as being without foundation. Steel Nails are more urgently called for, and reputedly in less supply than Iron. Those who have stocks of Nails are unwilling to fill orders for carload lots, but to such trade as they supply $2.40 ℔ keg is quoted as bottom price and very generally adhered to. The announcement from Wheeling that the Nail factories would start up this week with the feeders taking the place of the nailers is not looked upon as being practical to any extent, and has had no influence on price or consumption thus far. Jobbers here claim that there will not be feeders enough to start more than one-third the capacity of the Nail mills, even if it should be carried into successful operation, and in the present condition of the market this quantity of Nails would not be enough to keep the stocks in first hands well assorted.

American Pig Iron.—The market continues to be very dull in the way of contracting, and from assertions of sales agents those who are in the habit of contracting about this time of the year are from four to six weeks later than usual. Numerous inquiries have been made by the Implement manufacturers, but from the manner in which they are made it would seem that they are not in a hurry to close for the year's supply. Negotiations for 5000 or 6000 tons, which have been pending for several weeks by one of the largest concerns in the West, are expected to terminate this week.

This little incident will bring into the market sales agents enough to form a convention of the Pig-Iron makers of the West, and from the anxiety to obtain the orders which crops out it is possible that the market will receive another shock in price, as some of them are very determined to unload portion of their surplus stock, even at a further sacrifice of prices. Trade, as it stands, is largely for carload lots, in which something is being done all the time. There appears to be no cutting on this class of orders by sales agents, neither do purchasers make great efforts to get lower prices than those which they had previously obtained. There is no special demand for any class of Iron, but the majority of sales seem to be in the lower numbers of Charcoal Irons. Ohio Irons have a fair call, while Southern Irons seem to be in less demand than any of the other brands. In carload lots, four months, we quote Lake Superior Charcoal Nos. 1, 2 and 3, $19 @ $19.50; Nos. 4, 5 and 6, $20 @ 21; Lake Superior Coke, All Ore, $18 @ $18.50; Cinder Mixed, $17; Ohio Standard Blackband, $18.50 @ $19; Southern No. 1, $17.50; No. 2, $16.50; No. 3, $15; Mill Iron, $13.50 @ $14.50. These prices are nominally the same as quoted last week, and unless forced to a lower point through heavy sales are likely to remain a bottom quotation for some time. Furnacemen are inclined to curtail their product as much as possible and save the market from being further depressed by the stocks which are accumulating in their yards. It is said that the National Furnace, which has a pretty good stock of Iron on hand, will go out of blast within the next two weeks for repairs, which will require about 30 days, and should the market not have improved in the meantime additional repairs may extend the time 30 days longer.

Scotch Iron.—There is a slightly improved feeling in the market. Several buyers are coming forward who will require from 500 to 1000 tons, which has slightly revived interest in prices and stock. Most of the Iron that has thus far been sold, we are informed, has not yet passed through the customs department. The two brands chiefly called for—Glengarnock and Summerlee—are quoted at $23 to arrive, but on close competition these figures may be shaded.

Merchant Steel.—No improvement in the demand. There are no buyers of large lots, and trade consists exclusively of small lots which go direct into the hands of consumers. We renew our quotations for Tool Steel at from 7½¢ to 9¢; Bessemer, 3¢ @ 3½¢; Open-Hearth, 2¾¢; Crucible, 4¼¢ @ 5¢.

Steel Rails.—There is no change to report in the condition of the market. It is whispered about that there is an increased demand for small lots, with inquiries for larger blocks, but rolling mills, if they know anything in regard to them, are not giving it away. The nominal quotation at mill continues to be $29 ℔ ton.

Old Rails.—Market remains in the same condition as heretofore, the nominal quotation for Chicago being $17 @ $17 25, and $16 at Milwaukee. Steel Rails are quoted at $13.50 @ $14.50, and $12 @ $13 for Long and Short Sections, respectively.

Bar Iron.—A much better feeling has prevailed during the past week. The Jones & Laughlins Company report that their orders have greatly increased and that the market is looking very much better than for sometime previous. Inquiries from many consumers are coming in very rapidly, and from every section of the country they are thoroughly impressed with the scarcity of stocks in the hands of retailers. On New Puddled Iron they continue to quote 1.80¢ rates from store and 1 65¢ @ 1.70¢ from mill. Common or Old Rail Iron has not correspondingly improved. Those who are handling this Iron report that they are having a slight increase in the number of orders, but nothing of importance has transpired. Common Iron is quoted from store at 1.70¢ rates, with rumors that mills are offering it in Chicago at less than $1.50 rates, delivered.

Structural Iron.—There is beginning to be considerable activity. The majority of factories are full of work made up of small orders which come from all parts of the country. Most of this stock is Bridge Material, and in larger quantities, which makes it difficult to place orders for small buildings, which seems to be the only thing that local dealers are in want of. We renew the following quotations: Beams and Channels, $3.10; T-Iron, $3; Angle Iron, $2.50; Flitch Plates, $2.50; Frieze Plates, $2.70; ¼¢ @ ½¢ is added for delivery from stock.

Plate and Tank Irons.—Quite a good trade has been doing for several weeks in this class of metal. Ordinary Tank is quoted at $2.40 and Heavy Sheets at $2.45. Steel Boiler Plate is quoted at $3.25 @ $5.50, with a much better demand than for Iron Sheets.

Black Sheets.—The market is recovering very slowly. Jobbers report a slightly improved demand for the light numbers from Stove-Pipe makers, while for other grades there seems to be no call. Reports are current that manufacturers have offered Black Sheets in this market to jobbers at $2 50 for No. 26, delivered, but those in a position to know state that the Iron is of such poor quality that it could not be adapted for any other use than that of being made into Stove-Pipe.

Galvanized Iron.—We learn that the makers of the better grades of Galvanized Iron are running pretty full, and have some difficulty in meeting their demand promptly. Business, however, is reported as being much less than at the same period in former years. Prices on all grades are extremely low, and the better classes of Iron are suffering more severely from "no profit in business" than from the want of orders. The demand for the best quality Iron is largely from consumers in small lots which go direct to the mill agents. Jobbers are doing the greater portion of their business in the lower grades, as they can buy that class of Iron at figures which will admit of their selling it to the consumer at about the same price they would need to pay the manufacturer for such Iron as "C. H. B." and other brands of the best manufacture. This has in a degree turned the consumer to makers' agents, who are in a sense ignoring the jobbers' trade and selling to those who will buy one or more bundles at a time, ranging in discount from 57½ to 62½ %, according to buyer and quantity. A regular discount by jobbers from store would be 60 % and 5 % on Juniata and 60 % and 10 % on Charcoal.

Old Wheels.—The demand is somewhat greater than a week ago, but there is no activity in the market and no large sales reported. Several small lots have changed hands at $14 @ $14.50 for Whole and Broken We learn of a lot of 100 tons which has been sold at $13 75, but the party, not having the Wheels on hand at the time, is experiencing considerable difficulty in obtaining stock for delivery at this figure. Prices quoted are not satisfactory to holders, and those who are in want of Wheels claim that they cannot pay more for them in the present condition of the Pig-Iron market.

Scrap Iron.—We can report a slightly increased demand for No. 1 Mill at $12.50 @ $13; No. 2 is quoted $8 @ $8.50; No. 1 Forge $16 @ $17. Scrap dealers report that their inquiries have been more numerous, and the prospect of some of the mills going to work have made them more firm in prices asked. We continue the following quotations as dealers' purchasing prices: No. 1 Wrought Scrap, ℔ net ton, $13; Cast Scrap, ℔ net ton, $11; No. 1 Stove-Plate Scrap, ℔ net ton, $8; Wrought Turnings, ℔ ton, $8.50; Cast-Iron Borings, $7; Old Plow Steel, $7.25; Tool Steel, ℔ ton, $13.50; Locomotive Steel Tire, ℔ net ton, $14.50; Buggy Springs, ℔ net ton, $13; Malleable Scrap, $6.

Pig Lead.—The market has ruled quiet and firm at 4¢. Manufacturers are inquiring more freely, and report an improved trade. Spot Lead continues very scarce, but commands no higher prices than future delivery. Sales during the week foot up 600 tons Refined Corroding, August delivery, and 200 tons Common, July delivery, at 4¢.

Chattanooga.

Office of *The Iron Age*, Carter and Ninth Sts., CHATTANOOGA, July 27, 1885.

In consequence of the prevailing hot weather that we are now having, the energies of business men seem more particularly devoted to keeping cool than to looking up customers. For several days the thermometer has ranged from 88° to 92°, with occasional showers to cool the atmosphere. Notwithstanding this, however, the general tone of business is upward, and the indications are strong that the spell is broken. The answer now to the invariable question, How is business? is, It is much better than it has been. Nothing can be more certain that, so far as the South is concerned, the dark clouds of the past months are breaking, and the painful anxiety that has prevailed is soon in a measure to be relieved by better times. No one is expecting a boom; no one is hoping or wishing for it; but the coming cotton, corn and fruit crops, the largest the South has ever grown, cannot do otherwise than inspire confidence in the future. While prices have not advanced as yet, business men are getting ready to do more when the tide begins to flow, as it inevitably will. Confidence is in a measure electrical in its operations, and confidence will grow from day to day as the prospects brighten. The representative of a prominent Hardware house in New York, who was here the other day, remarked that their house had received triplicate and quadruple orders within the last two weeks from many Southern houses, and his present trip was more encourging and satisfactory than any that he had ever made.

Mineral lands are changing hands. A recent sale of twenty-three 40-acre sections of Ore lands at Attala, Ala., at $14 ℔ acre, to Christopher & Stewart, was considered cheap. The land is mostly underlaid with fossilliferous Ore of excellent quality, and ranging from 3 to 5 feet in thickness. The parties are large miners, and it was for this purpose that the purchase was made.

The Lookout Mills, which have remained idle for some months, are about to resume operations on full time. Their productions are Bar Iron, Fish Plate and Light Rail. All the other manufactories are running full, and anticipate no want of orders for the balance of the year, although prices are very low. Many new enterprises are projected all over the South. Few of them, perhaps, will take root and flourish, but enough to show that manufacturing will become universal in all the Southern States.

Pig Iron.—More inquiries have been received during the past week for round lots than during the same period in months. While there has been no actual advance, many predict an early advance of not less than 50¢ ℔ ton. Most of the furnaces are sold ahead, and it would be a difficult matter to make contracts at present prices for future delivery, excepting, perhaps, with some of the furnaces that are about to blow in, of which there are some three or four. At the present time the Eastern market is rather the more favorable point for shipment. The Southern foundries are increasing their orders more and more as the season advances. The shipments of Southern Iron to Eastern points for the past week have been to New York, 630 tons; Philadelphia, 205 tons; Boston, 108 tons; in all, 943 tons. Prices range for Mill, $11 @ $12, and for Foundry, $13 @ $14, and Open Bright and American Scotch, $12 @ $14, according to quality.

Hardware.—Business in this line is looking up considerably. Merchants are feeling round and anticipating the wants of their customers as much as possible. Building Material is in good demand.

Miscellaneous.—The numerous short lines of narrow-gauge roads have created a demand for Light Rail, which is quoted at $38 @ $44 on the ground, according to weight. Some of our car works are in hopes of getting their share of the lot of 700 cars soon to be built by the M. & N. O. line. We have several works that are well prepared to do the work, and the competition will probably be quite sharp. The Lumber business is still quite active, with shipments of 53 carloads to Philadelphia and New York during the week.

Birmingham.

BIRMINGHAM, Ala., July 27, 1885.

The continued good weather in this region is enough to make manufacturers a little jealous of the shop-keeping lines, which, of course, will get the first benefit of the promised fine crops. The best thing that Iron men can see ahead of them definitely is the crops, albeit their business wears a decidedly more cheerful look now than it did even two weeks ago.

The promises of new enterprises are better now than they have been for a year. The Elyton Sand Company, which have several times before thought they had practically accomplished the same thing, announce a definite arrangement by which, on ground given by them, the Queen and Crescent Railroad are to locate extensive machine and repair shops here and bring the division headquarters from Chattanooga Mr. P. D. Barker, late collector of internal revenue in the Montgomery district, and now practically resident in New York, has just been here arranging to build a $75,000 cotton compress. It is pretty well settled that he will build right away. There was another cotton-compress project on a much smaller scale on foot, but the prospect of such well "fixed" competition killed it. The Birmingham Stove Company are building just out of town. Without apparent assurances to justify it, there is a more hopeful feeling with reference to certain railroad projects. President Johnson, of the Georgia Pacific Road, has been in New York for several days at work on what is understood here to be a promising scheme to close a gap in his road of 40 miles of fine Coal country between here and Columbus, Miss. The present tendency of things in Mississippi affords good backing for this project. One argument is the progress of the Memphis, Selma and Brunswick Road, which is now completed as far as Holly Springs, Miss., and which would be an invaluable connection for Birmingham. Then, Aberdeen and West Point, two promising towns, show a disposition to do the liberal thing toward building to the Georgia Pacific in case it is completed.

Mention has been made in this correspondence of some of Birmingham's Iron specialties. There is another concern that deserves to have something said of it in this connection. They make Water and Gas Pipe quite extensively, and, although at present compelled to figure very closely for all orders, hold their own very well against competition further north. They do not try to go out of the South, and yet meet St. Louis, Louisville, Chattanooga and Philadelphia everywhere. Within easy reach of the seaboard, the last-named city is the most formidable competitor. The same concern are making Steam Pumps conforming to the Worthington plan in most respects, with more business offering than they have capacity to do. In this line the orders must come from the mines in this region almost exclusively. Sugar Refinery Castings constitute another specialty at the same place. For these, which require a considerable outfit and unusual care, New Orleans is the market, with New York the only competitor.

Pig Iron.—As a general thing there has been no improvement in prices. Taking the buying sections severally, there has been some variation of prices, but the averages remain about the same. New York is just now paying from 35¢ to 50¢ more than the West. Within the last 10 days orders for "Mary Pratt" Iron, which usually brings a little better price than any other in this district, have been filled at an average of $14.50 for No. 1 and $13 for No. 2 Foundry, cash at furnace. Bids were made here last week for some big orders for Cincinnati and St. Louis.

Coal.—Business is a trifle blue. One concern here, the Warrior Coal and Coke Company, have a serious strike on their hands. Last April, after a shut-down, they surrendered to a demand of their miners for semi-monthly instead of monthly payment, and work was resumed on the understanding that no other change was to be proposed for three months. This period expired one day this week. Monday the men struck against the superintendent and bank boss, and another shut-down is the result. The strikers say very positively that they will work only under new men, and, as the management of the company do not show a disposition to make the demanded removals, there is no settlement in sight. The Watts Coal, Coke and Iron Company recently defeated a strike by a counter-movement against the Knights of Labor. It now has a good quota of non union men, and will have no other kind. This is the only case in this State of antagonism between Coal operators and the Knights of Labor.

Baltimore.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of July 27, 1885: Notwithstanding the extraordinary heated term we have just experienced, trade has fully maintained the increased activity noted in our last, this, however, unaccompanied by any improvement in values, which are at the very lowest ebb. Stocks are greatly reduced and assortments much broken, and any change in this respect must be for the better. We quote the list unchanged at annexed figures:

Ref. Bar Iron, 1 to 6 x ⅜ to 1	℔ lb	1¾ @ 1 8-10¢
" " 1 to 4½ x 1⅛ to 1	℔ lb	1¾ @ 1 8-10¢
" " ¾ to 2, Round and Square	℔ lb	1¾ @ 1 8-10¢
Hoop Iron, 1½ wide and upward	"	2½ @ 2¾ ¢
Band Iron, from 1½ to 6 in. wide	"	2¾ @ 2½ ¢
Horse-shoe Iron	"	2¾ @ 3 ¢
Norway Nail Rods	"	5 @ 5¼ ¢
Black Diamond Cast Steel	"	9 @ 10 ¢
Machinery Steel	"	3½ @ 4¼ ¢
Spring Steel	"	3½ @ 4 ¢
Common Horse Nails	"	8 @ 9 ¢
Railroad Spikes, 5½ x 9-16	"	2 @ 2¼ ¢
Perkins's Horse Shoes, ℔ keg of 100 lb		$3.72½
" Mule Shoes		4.72½

Imports and Exports.

IMPORTS.

The following were the Imports of Hardware, Iron, Steel and Metals into the Port of New York for the week ending July 29, 1885:

Hardware.

Boker Hermann & Co.
Hdw., cutlery and guns, pkgs., 78
Bryn Wm. & Co.
Cases, 3
Degrauw, Aymar & Co.
Mdse., cs., 2
Drexel, Morgan & Co.
Arms, cs., 18
Duden & Co.
Mach'y, cs., 18
Field Alfred & Co.
Anvils, 25
Guns, cs., 6
Folsom H. & D.
Arms, cs., 8
Gerdan Otto,
Bundles, 245
Hoosac Tunnel Co.
Mdse., cs., 16
Kaufman Bros. & Co.
Cases, 4
King Jos. H.
Mach'y, cs., 2
Lamarche H. & Sons,
Mdse., cs., 3
Luqueer R. S. & Co.
Cases, 3
Marquardt H. & Co.
Steam pump, case, 1
Moore's Sons J. P.
Mdse., cs., 2
Moquin H.
Corking machine, 1
Ordnance Department,
Mdse., cs., 7
Riesthal & Co.
Mdse., cs., 10
Rivera & Co.
Mach'y, bxs, 2
Schoverling, Daly & Gales,
Mdse., cs., 32
Struller, Lau & Co.
Arms, cs., 3
Syracuse Ch. Plow Co.
Plow, 1
Vom Cleff & Co.
Mdse., cs., 33
Wiebusch, Hilger & Co.
Hdw. and cutlery, pkgs., 48
Chains, pkgs., 26
Witte John G. & Bro.
Lamps, case 1
Cutlery, cs., 6
Order,
Ironware, pkgs., 54
Files, cks., 2
Cases, 3
Hairpins, cs., 9

Iron.

Alexandre & Sons.
Bars, 36
Bundles, 36
Baring Bros. & Co.
Wire rods, coils, 856
Bars, 8734
Brown Bros & Co.
Bars, 19,238
Califano G.,
Old iron, kg., 12,126
Coddington T. B. & Co.
Sheets, bdls., 358
Crocker Bros.
Spiegel, tons, 130
Spiegel, lot, 1
Downing R. F. & Co
Pig, tons, 200
Duden & Co.
Castings, 12
Eckstein Chas. G.
Iron girders, 73
Heraval ——
Pig, lot, 1
Kennard Ed. P.
Old rails, tons, 45
Krajewski & Co.
Castings, crate, 1
Lillienberg N.
Bundles, 578
Pigs, 5½
Lundberg Gust.
Bars, 13,125
Morton, Bliss & Co.
Beams, 346
Naylor & Co.
Beams, 307
Rods, coils, 9232
Bars, 25,068
Billets, 127
Cotton ties, bdls., 13,300
Pierson C. L. & Co.
Sheathing, cs., 70
Phelps, Dodge & Co.
Sheet iron, bxs., 12
Plock & Co.
Bundles, 118
Bars, 2469
Pim Forwood & Co.
Galv. corrugated, cs., 63
Ward Jas. E. & Co.
Car wheels, 103
Axle boxes, cs., 9
Order,
Spiegel, tons, 1400
Spiegel, kg., 846,574
Ore, tons, 1129
Beams, 127
Pig, tons, 300
Scrap, kg., 190,555
Coils, 489
Wire, bdls., 319

Steel.

Baring Bros. & Co.
Rods, 3640
Cabble Elijah
Package, 1
Cary & Moen,
Bundles, 167
Downing R. F. & Co.
Slabs, 259
Bundles, 90
Lazard Freres,
Wire, pkgs., 718
Ordnance Department,
Hoop forgings, 9
Naylor & Co.
Rods, bdls., 28,877
Scrap, tons, 58
Rawlins G. E.
Cases, 17
Sheldon & Co.
Bars, 35
Bundles, 65
Cases, 5
Wagner W. F.
Bars, 76
Bundles, 377
Plates, 84
Cases, 14
Order,
Bundles, 57
Plates, cks., 2
Packages, 23

Metals.

Agastini Jos.
Old copper, cask, 1
Old copper, bxs., 3
Ansonia Clock Co.
Mdse., cs., 6
Baring Bros. & Co.
Tin plates, bxs., 1343
Bruce & Cook,
Tin plates, bxs., 3021
Boera & Co.
Wrought tin, cs., 17
Canadian Bank of Commerce,
Tin plates bxs, 1250
Carter, Hawley & Co.
Tin slabs, 1733
Dickerson, Van Dusen & Co.
Tin plates, bxs., 814
Downing R. F. & Co.
Tin plates, bxs., 324
Elwell J. W. & Co.
Old brass, bbl., 1
Phelps, Dodge & Co.
Tin plates, bxs, 19,642
Black taggers, bxs., 575
Order,
Tin plates, bxs., 10,969
Tin taggers, bxs., 60
Tin slabs, 1708

The imports of Hardware, Cutlery and Metals at this port during the week ending July 24 were as follows:

	Quantity.	Value.
Anvils	160	$967
Brass goods	55	4,536
Bronzes	25	2,064
Chains and Anchors	96	960
Clocks	18	1,060
Cutlery	139	49,877
Gas fixtures	2	1,015
Guns	162	26,332
Hardware	11	367
Iron, pig, tons	2,777	64,291
Iron, sheet, tons	19	1,573
Iron ore, tons	2,703	4,870
Iron, other, tons	866	35,039
Lead, pigs	15	60
Machinery	118	1,354
Metal goods	364	14,694
Needles	7	2,774
Nails	3	396
Old metal		604
Platina	2	2,278
Plated ware	12	597
Pins	22	1,606
Plumbago	480	4,556
Saddlery	13	1,741
Steel	28,314	53,223
Spelter, ℔	317,756	6,630
Tin, boxes	78,998	391,116
Tin, 2,800 slabs, ℔	180,115	36,963
Wire	6	1,190
Zinc, dust	14	586
Zinc, oxide	100	758
Zinc, ℔	165,378	5,629

The comparison for two years since January 1 is as follows:

	30 weeks of 1885.	Same time 1884.
Cutlery, pkgs	2,457	2,925
Hardware, pkgs	380	489
Iron, R. R., bars		9,422
Lead, pigs	30,022	20,682
Steel, pkgs	1,216,900	1,056,629
Tin, bxs	1,095,901	1,092,281
Tin slabs, ℔	8,460,326	10,570,419

EXPORTS.

The following list embraces the Exports of Hardware, Machinery, Iron, Metals, &c., from the Port of New York, for the week ending July 28, 1885:

	Quan.	Val.
Danish West Indies.		
Iron, pots	130	$182
Sew. ma., cs.	2	33
Ag. imp., pkgs	12	72
Shot, bags	20	30
Tinware, cse.	1	28
Cutlery, cs.	2	38
P. caps, case	1	16
Copenhagen.		
Ag. imp., pkgs	17	1,922
Clocks, cs.	2	174
Hamburg.		
Hdw., pkgs	111	2,309
Nickel matte, bbls	19	3,240
Clocks, cs.	102	2,850
Sew. ma., cs.	980	23,193
Blower	1	30
Saws, case	1	130
Ag. imp., pkgs	14	505
Mach'y, pkgs.	68	4,125
Jap. iron, cs.	18	180
Pumps, pkgs.	14	3,000
Copper, casks	45	5,880
Rifles, cs.	8	552
Bremen.		
Mach'y, pkge.	1	217
Ptg. presses, cs	6	160
Arms, cs.	2	350
Hdw., cs.	7	110
Pumps, pkge.	1	55
Mf. iron, pkgs	6	400
Hull.		
Pumps, pkgs.	3	149
Liverpool.		
Clocks, pkgs.	95	1,854
Copper matte, bags	7420	46,350
Hdw., pkgs.	13	278
M. rollers, cs.	3085	771
Ag. imp., pkgs.	21	895
Springs, bdls.	4	200
Br. goods, cse	1	200
Mf. iron, pkgs	5	268
Mach'y, pkgs.	23	1,602
Copper, cks.	90	11,760
Copper, puns.	852	2,250
Sew. ma., cs.	138	4,007
Antwerp.		
Sew. ma., cs.	160	2,838
Mach'y, pkgs.	7	1,100
Hdw., cs.	4	180
Copper, cks.	158	21,250
Pumps, pkgs.	8	563
Glasgow.		
Hdw., pkgs.	28	485
Sew. ma., cs.	62	3,865
W. mills, cs.	48	2,175
Mf. iron, pkgs	22	541
Ag. imp., pkge	1	53
Car springs, cs	2	185
London.		
Ox. zinc, bbls.	50	402
Mf. iron, pkgs	1526	6,160
Pumps, pkgs.	2	45
S. rollers, cs.	6	50
Air guns, cs.	2	268
Rifles, cs.	58	4,426
Burners, cs.	15	312
Mf. steel, cs.	2	200
Scales, pkgs.	87	999
Knit. ma., pge	9	200
Tacks, case	1	32
Sew. ma., cs.	303	12,711
Hdw. pkgs.	113	3,447
Ag. imp., case	1	65
Clocks, cs.	52	1,522
Mach'y, pkgs.	63	4,340
Vaporizers, cs	3	396
Cartridges, cs	116	2,078
Iron safe	1	150
Amsterdam.		
Mf. iron, pkge	1	80
Copper, cakes	29	6,730
Hdw., pkgs.	13	145
Rotterdam.		
Copper, cks.	126	17,500
Hdw., pkgs.	65	709
Ag. imp., pkge	1	55
Wringers, cs.	16	500
Aronmouth.		
Clocks, cs.	23	268
Zinc ashes, bls	160	1,300
British West Indies.		
Hdw., pkgs.	7	58
Pumps, pkgs.	5	112
Cutlery, case	1	21
Sew. ma., cs.	3	73
Mf. iron, pkgs	2	18
Nails, kegs	6	22
British Australia.		
Ag. imp., pkgs	302	7,605
Hdw., pkgs.	997	17,553
Sew. ma., cs.	311	10,067
Tacks, cs.	26	523
Tinware, cs.	5	70
Mach'y, pkgs.	55	8,201
W. mills, cs.	19	459
Bells, pkgs.	4	135
Scales, cs.	14	406
Wringers, cs.	2	30
Evaporator	1	25
S. rollers, cs.	4	80
Axles, cs.	13	405
Cartridges, cse	1	25
Weld'g comp., case	1	18
Rifles, case	1	137
Nails, cs.	5	45
Mf. iron, pkgs	108	2,011
Clocks, cs.	6	139
Saws, cs.	8	710
Pumps, pkgs.	15	937
Forges, pkgs.	4	40
Steel, bdls.	6	40
Nova Scotia.		
Mf. iron, pkgs	4	131
Mach'y, pkgs.	21	325
Sew. ma., cs.	10	300
Clocks, bxs.	15	265
Tinware, cs.	4	67
Canada.		
Mach'y, pkgs.	2	97
Newfoundland.		
Mach'y, pkgs.	11	910
Hdw., pkgs.	11	253
Ag. imp., pkgs	13	199
Brass, case	1	21
British Guiana.		
Mach'y, pkgs.	1	35
Rifles, case	1	80
British Possessions in Africa.		
Nails, kegs	19	50
Mf. iron, pkgs	22	185
Ag. imp., pkgs	125	2,318
Leading wire, case	1	60
Cartridges, cs	2	40
Sew. ma., cs.	20	400
Hdw., cs.	41	1,342
Saws, case	1	80
Pumps, pkgs.	3	140
Mach'y, pkgs.	1	80
W. mills, cs.	74	850
Havre.		
Mach'y, pkge.	1	75
Copper, cks.	225	18,380
Hdw., cs.	17	160
Sew. ma., cs.	74	5,466
Copper matte, sacks	512	3,000
Ag. imp., pkgs.	2	176
Cuba.		
Mf. iron, pkgs	103	988
Wheels and a., pairs	4	615
Tinware, cs.	7	336
Iron, pkgs.	13	94
Zinc sarcophagi	12	504
Cutlery, cs.	61	820
Scales, cs.	16	142
Forge	1	14
Nails, cs.	3	13
Tin plate, cse.	1	45
Meter fgs., case	1	100
Blower	1	47
Copper, sheets	4	295
Hdw., pkgs.	200	3,788
Mach'y, pkgs.	5	524
Nails, kegs	30	58
Ag. imp., pkgs	17	786
Clocks, cs.	7	120
Pumps, pkge.	1	30
Wire gds, cse.	1	13
French West Indies.		
Pumps, pkgs.	2	16
Clocks, case	1	12
Central America.		
Hdw., cs.	25	316
Cartridges, cs.	2	23
Scales, case	1	3
W. whls, pkgs	30	907
Clocks, cs.	2	76
Mf. iron, pkgs.	9	306
Spikes, kegs	18	33
Nails, kegs	10	22
Tinware, pkgs	4	35
Shot, bxs	7	91
Cutlery, cs.	7	218
United States of Columbia.		
Hdw., pkgs.	155	2,624
Mach'y, pkgs.	253	15,145
Mf. iron, pkgs	530	3,409
Steel, pkgs.	11	216
Clocks, cs.	4	151
Tinware, pkgs.	14	406
Locomotive	1	4,215
Railroad cars	40	18,200
Zinc, cks.	2	68
Composition, case	1	150
Sew. ma., cs.	60	1,130
Cutlery, cs.	7	187
Ag. imp., pkgs.	16	807
Revolvers, cse	1	827
Wire gds., cse	1	30
Cartridges, cs	13	285
Nails, kegs	23	52
Iron, pkgs	586	12,008
Boats	3	650
Mf. copper, cs.	2	29
Chain, cks	3	257
Lead pipe, pg.	1	91
Steam pump	1	350
Liberia.		
Sew. ma., cs.	9	161
Mf. iron, pkgs	19	83
Nails, kegs	66	181
Brass kettles, case	1	92
Steel, bdls	2	55
Tinware, cs.	3	21
Scales, case	1	14
Ag. imp., pkgs	4	29
Hdw., pkgs.	10	112
Mach'y, pkgs.	13	390
Bells	4	143
Clocks, cs.	3	20
Cutlery, case	1	27
Wash. ma., cse	1	12
Oporto.		
Cutlery, cs.	3	285
Argentine Republic.		
Hdw., pkgs.	387	7,142
Mach'y, pkgs.	12	1,089
Rivets, kegs	10	70
Clocks, cs.	6	110
Scales, cs.	55	1,030
Tacks, cs.	80	300
Wire, bxs	800	8,400
Mf. iron, pkgs	6	97
Ag. imp., pkgs.	1642	58,603
Saws, cs.	2	31
Nails, cs.	720	2,630
Presses	12	1,400
Sew. ma., cs.	224	3,975
Brazil.		
Tinware, cs.	7	120
Hdw., cs.	253	1,430
Ag. imp., pkgs	39	258
Mexico.		
Hdw., cs.	23	250
Nails, bxs	2	6
Mf. iron, pkgs	74	462
Iron, bars	10	29
Rollers, case	1	50
Pumps, pkgs	2	52
Pig iron, tons	20	260
Saws, case	1	53
Mach'y, pkgs.	4	47
Sew. ma., cs.	12	171
Tin, bbl	1	54
Japan.		
Wire gds., cse	1	29
Mf. iron, pkgs	52	545
Hdw., cs.	3	161
Uruguay.		
Mf. iron, pkgs	63	581
Ag. imp., pkgs	674	15,755
Sew. ma., cs.	87	1,405
Hdw., pkgs.	10	279
Mach'y, pkge.	1	80
Clocks, pkgs.	9	253
Wire, bxs	150	1,575
Car wheels	256	1,606
Hdw., cs.	17	265

Trade Report.

General Hardware.

The past week has been uneventful, and few changes have been made in prices. The volume of trade does not show material variation. The principal points of interest are noted below.

NAILS.

The situation is practically unchanged. Eastern mills are shipping Nails to the West, but any attempts to realize better figures here are unsuccessful through the apathy of buyers and the continuance of concessions by some makers. One party not in the Nail business has been endeavoring to place Nails acquired some time since, and these offerings have contributed toward the same result. Interest centers in the situation in the West, which we discuss editorially. We quote nominally $2 10 from store for Iron Nails and $2.25 to $2.35 for Steel Nails, which are still scarce. The other leading markets are reported elsewhere.

BARB WIRE.

The market is quiet, with a fair call for small and large lots for the season. Barb-Wire manufacturers generally report that, as compared with former years, the July business is satisfactory and it is certain that the consumption in the East has shown evidences of a steady growth. Quotations remain 4.35 to 4.4 cents, for carload lots of Four-Point Galvanized Barb Wire, and 4⅝ to 4¾ cents for small lots.

In consequence of litigation between the Iowa Barb Wire Company and Washburn & Moen, a misapprehension has arisen in some quarters that the suits were brought by the Washburn & Moen Mfg. Co. for infringement of the patents. This is incorrect, as the Iowa Wire is fully licensed under all of Washburn & Moen's patents as well as under the Burnell patent, the suits being merely to determine the amount of royalty due under the license. The suit was instituted originally by the Iowa Barb Wire Company, and not by the Washburn & Moen Mfg. Co.

Dispatches from Chicago announce that a number of representatives of manufacturers of Barb Wire have held a meeting there, at which it was decided to form a pool and advance prices 15 per cent.

APPLE PARERS.

The manufacturers of Apple Parers have made some new machines for the present season, but the line is substantially the same as last year, and the trade should have no difficulty in making selections of machines from the extended assortment on the market. Prices show but little alteration since last season, but are perhaps slightly lower. We give below the names of the leading manufacturers in this line and the machines they are making, with prices in most cases. The review of the market thus given will advise our readers as to its general features, and will thus be of service to them:

The Goodell Company, Antrim, N. H., who are represented here by the Livingston Horse Nail Company, 104 Reade street, are known as leading manufacturers of Apple Parers. Their principal Machines are the following, which may be quoted at the prices named:

Turntable	per doz.	$5.00
New Lightning	per doz.	6.50
White Mountain	per doz.	5.00
Family Bay State	per doz.	12.00
Improved Bay State	per doz.	28.00
Empire State	each	9.00
Eureka	each	12.00

The last named Machine, the "Eureka," is new this season, and will be remembered by our readers as one of which we have recently given a description.

The Reading Hardware Company, Reading, Pa., and 81 Reade street, New York, are manufacturing Apple Parers as follows: "78," "Two Knife," "76," "72" and "Gem;" and Parers, Corers and Slicers as follows: "Advance," "Champion" and "Model." These are sold "to the large retail trade" at the prices given below:

"78"	per doz.	$6.50
"Two-Knife"	per doz.	6.50
"76"	per doz.	5.50
"72"	per doz.	4.25
"Gem"	per doz.	5.00
"Advance"	per doz.	4.50
"Champion"	per doz.	7.50
"Model"	per doz.	4.25

The Scott Mfg. Co., Baltimore, Md., are offering substantially the same line of Parers this year as last. Among these may be mentioned as leading styles their Rotary Knife Family Peach and Apple Parer; the "Mammoth" Rotary Knife Peach and Apple Parer, for packers and evaporators' use, which was put on the market last season; the "Gold Medal" Apple Parer, in which attention is called to the exceptionally quick-return motion; the "Oriole" Apple Parer, Corer and Slicer, and the "Wizard" Apple Parer, Corer and Slicer, which is described as simple, practicable and durable, and which is furnished either to be worked by hand or with attachments for power. They have also added this season an enlarged "Gold Medal" for packers' use.

L. A. Sayre, Newark, N. J., is offering the "Waverly" and "Jersey" Apple Parers, the prices of which are as follows: "Waverly," per doz., $5; discount, 10 per cent.; "Jersey," per doz., $5. No change has been made in the "Waverly" since last season, but improvements have been made in the Cutting and Coring Knife of the "Jersey." The Standard or Slicing Knife is made with spurs on the inner edge of the circle for the Coring Knife, and the Coring Knife is punched with holes to fit over the spurs. Mr. Sayre informs us that he will have a new machine out in a few days, and another later in the season.

C. E. Hudson, Leominster, Mass., for whom the Livingston Horse Nail Company, 104 Reade street, are agents, is offering the trade the Rocking Table Apple Parer and the Little Star Parer, Corer and Slicer, on which he reports exceptionally early and satisfactory orders. The Parers are sold as follows:

Little Star	Per dozen.	$5.00
Rocking Table	" "	6.50

The following are the Apple Parers made by the Penn Hardware Company, Reading, Pa., for whom Sise, Gibson & Co. are agents, 100 Chambers street, New York:

Whittemore's "Simplicity" Apple Parer, Corer and Slicer	Per dozen.	$6.00
"Triumph," 1883, Paring, Coring, Slicing and Halving Machine	Per dozen.	6.00
Whittemore's "Perfection" Paring, Coring Slicing and Halving Machine	Per dozen.	6.00
"Improved Penn," 1884, Parer, Corer and Slicer	Per dozen.	5.50

The Peck, Stow & Wilcox Company, Southington, Conn., and 27 Chambers street, New York, are making Stow's Improved, with clamp, which they quote at $9 per dozen, discount 33⅓ and 10 per cent.

Advices indicate that the Apple crop will this year be fair, but not exceptionally large. The manufacturers of Parers unite in taking a hopeful view of the season's trade, and express themselves as confident of selling more Parers than last year. Less Parers than usual were carried over by the trade, and the continual extension of the business of evaporating Apples is referred to as likely to give an increased demand for Parers adapted to factory use. The price of evaporated Apple is, however, said to be so low as to be unremunerative to some engaged in the business, but the great facility with which the work can be done with the improved and rapidly-working machinery now in use, and the low price of Apples in many sections, are referred to as influences which will stimulate and encourage this industry and give to it much larger dimensions than it at present possesses.

ITEMS.

Among the Hardware Novelties on page 31 will be found an illustration and description of Wright's Combined Measure and Funnel, of which William J. H. Gluck, of Baltimore, is the exclusive manufacturer. The price of these goods, made from the best style of IX Plate, is $1.95 per set, subject to a discount of 25 per cent. In orders of six sets or more an additional discount of 10 per cent. is allowed for prompt cash.

The Standard Mfg. Co., Boston, manufacturers of the "Standard," "Acme," "Kingston" and "Manhattan" Egg Beaters, in a circular dated July 22, call attention to the fact that some parties are manufacturing Egg Beaters in infringement of their patents.

A. B. Farquhar Company, York, Pa., and 59 Beekman street, New York, issue a catalogue in Spanish, illustrating and describing a line of their Agricultural Implements and Machines, which are specially adapted for export. It is convenient, well arranged and attractively printed, and will be of service to those for whom it is intended. It is another evidence of the enterprise and energy American manufacturers are displaying in finding foreign markets for their products.

The Crown Roller Skate Company, 220 and 222 East Main street, Decatur, Ill., issue a circular describing the Crown Roller Skate, in which, alluding to its advantages, they mention the following, among others: That the tension can be adjusted on the foot without the use of tools; that the adjusting plate produces a uniform pressure on the rubber in all positions; that the rubber cannot bulge out nor become useless; that it can be taken apart and put together again without the use of a single tool. They make the following styles: Wood Top Rink Skate, Wood Top Private Skate, Steel Bottom Gents' Club Skate, Steel Bottom Ladies' Club Skate.

The following from an old subscriber gives an idea of the quiet prevailing in his store during the past week:

I know of no time since the initial number of *The Iron Age* made its appearance when its interesting pages have been read more thoroughly. We have time to do so now. During the past week, with the thermometer soaring above 90°, farmers busy with harvest and threshing, and very little, if any, activity in town, we have sat and read. Though a Hardware store is probably the coolest place in town, yet the Cook Stoves this week have seemed to enter the lists, and their cold sides and tops have almost given out heat. We have had time to consider the speculative advance in Tin Plates and such other matters of interest. Dull times seem productive of inventions in great number. Our attention has been drawn particularly to the newly-awakened interest taken in improving Culinary Utensils. The world should certainly be better, because it should be more healthy as improved and more thoroughly-cooked articles of food are eaten

The Ætna Powder Company, 98 Lake street, Chicago, under date July 20, issue a price list of Blasting Supplies, calling attention to the reduction in prices. They give quotations on Ætna Dynamite, Safety Fuse Caps, Batteries, Platinum Fuses, Wire Tools, &c. The last page is devoted to a table showing the brands of Powder manufactured by various companies, with the percentage of nitro-glycerine they contain.

Ducharme, Fletcher & Co., Detroit, under date July 15, announce that on and after August 1, 1885, their terms of sale will be 30 or 60 days. On 60-day invoices they will allow a cash discount of 2 per cent., and on 30-day invoices a cash discount of 1 per cent., if paid within 10 days within date of each invoice.

The market on Augers and Bits continues to show signs of a gradual stiffening in price. The manufacturers, dissatisfied with the extremely low figures, which in many cases were doubtless unremunerative, have accumulated but little stock, and some of them who have been naming the lowest prices are withdrawing their extreme quotations. As a result it is intimated as improbable that the goods will continue to be sold at the low figures which have prevailed, and some expectation is expressed that there will be an advance in prices. It is to be noted with satisfaction that whatever firmness there may be in this line is not the result of any artificial stimulus, but a natural reaction from extremely low prices.

The New England Butt Company, Providence, R. I., and 99 Chambers street, New York, have issued a new illustrated catalogue, in which, in addition to their line of Cast Butts, of the different styles of which illustrations are given, they represent the Bell Pulls, Escutcheons, Knobs, Knobs with Rose and Escutcheon combined, Latches and Locks which they are making. They also call attention in a circular to Prouty's Rigid Door Knob, the construction of which is illustrated, and the advantages mentioned. The catalogue is attractively printed, and will be received with interest by the trade.

The manufacturers of Wrought Iron Pipe have been in conference, and as a result have made a slight advance in the prices of both Galvanized and Plain.

Hammacker, Schlemmer & Co., New York, in a circular, July 15, announce that they have decided to still further reduce the price of Patent Steel Wire Nails, which they refer to as rapidly replacing common cut Nails. They quote either the H. P. Nail Company's or the Hartman Steel Company's goods at discount 50 and 10 and 5 per cent., f.o.b. Pittsburgh, Pa., or Cleveland, Ohio, with freight allowance of 15 cents per 100 pounds to point of delivery.

Lane & Gale, Troy, N. Y., have commenced building a new polishing shop and storehouse on the site of the property recently destroyed by fire. The present premises, it is stated, will be on a more extensive scale than the former, and will give them increased facilities for the production of their well-known line of Axes.

The Wire Goods Company, Worcester, Mass., for whom Sise, Gibson & Co. are agents, 100 Chambers street, New York, have issued a supplementary sheet of new goods for insertion in their recent catalogue. It comprises the following, which are illustrated with full-sized cuts:

Telegraph or Ticket Hooks.

No. 171, Brass Hook, Brass Base.
No. 172, Steel Hook, Brass Base.

Desk Hooks or Paper Files.

No. 191, Brass Hook, Brass Base.
No. 192, Steel Hook, Brass Base.

Splasher Holders, Adjustable.

No. 10, Nickel-Plated, with Black Enameled Base, Length 33 inches inside.

End or Corner Splasher Holders.

No. 14, Nickel-Plated, with Black Enameled Base, Length 14 inches inside.

The Hooks above mentioned are packed half-gross in a box, and the Splasher Holders one dozen in a box. The object of the Splasher Holder is stated to be to permit frequent and easy changes of Towels or Splashers behind washstands without injuring the wall. The device can also be used as a Show Window Railing or for curtains over windows or doors. It can be furnished in various lengths.

CARTRIDGES AND REVOLVERS.

The condition of prices in Ammunition and Revolvers is regarded as exceedingly unsatisfactory by the trade at large. Cartridges, since the warfare among the jobbers began, have been selling at very irregular prices, and in many cases leading houses have sold the goods at or very near cost. For a time the restriction placed upon the jobbers by the Cartridge manufacturers had the effect of keeping this competition and cutting of prices within bounds, but since the withdrawal of the restriction, leaving the jobbing houses free to sell at any price they desire, the market has become more unsettled. The manufacturers express regret that this condition of things prevails, but place the entire blame upon the jobbers, whose cutting of the price, they claim, has brought about the present condition of things. As a result careful buyers are able to shade materially the discount of 60, 10 and 2 per cent, a price which is as low as the goods ought regularly to be sold. The prices of Revolvers recently adopted by the associated manufacturers are also unsatisfactory, especially to the large trade. These prices, which have been sent out to the trade at large and which were made public in last week's *Iron Age*, the list of another manufacturer being given in this issue, are criticised by the trade, inasmuch as no better quotations are made to the jobbing houses. The manufacturers, however, refer to these prices as extremely low and not justifying concessions to large purchasers, and allude also to the fact that the facility with which the goods have been purchased at cut prices has had the effect of unsettling the market and necessitating this action.

REVOLVERS.

The following are the revised prices for the "Sterling" Revolvers, issued by the Alford & Berkele Company, 77 Chambers street, New York, agents for E. L. Dickerson, Springfield, Mass., whose name was inadvertently omitted from the list of the members of the association given in our last issue:

"Sterling" Revolvers.

Nos.	Cal.	Shots.	Description.	Price.
122	22	7	Wood Stock, Short Cylinder	$0.55
222	22	7	Wood Stock, Long Cylinder	.60
222 F	22	7	Wood Stock, Long Fluted Cylinder	.68
322	22	7	Rubber Stock, Long Cylinder	.70
422 F	22	7	Rubber Stock, Long Fluted Cylinder	.73
522	22	7	Rubber Stock, Long Fluted Cylinder, Oct. Brl.	.78
622	22	7	Rubber Stock, Long Fluted Cyl., Saw Hdl., Oct. Brl.	.86
132	32	5	Wood Stock, Long Fluted Cylinder	.90
232	32	5	Rubber Stock, Long Fluted Cylinder	1.00
332	32	5	Rubber Stock, Long Fluted Cylinder, Oct. Brl.	1.05
332 S	32	5	Rubber Stock, Long Fluted Cylinder, Saw Hdl.	1.10
432	32	5	Rubber Stock, Long Fluted Cyl., Oct. Brl., Saw Hdl.	1.15
132 W	38	5	Wood Stock, Long Fluted Cylinder, Oct. Brl.	1.55
138	38	5	Rubber Stock, Long Fluted Cylinder, Oct. Brl.	1.65
138SR	38	5	Rubber Stock, Long Fluted Cylinder, Saw Hdl.	1.80
138 S	38	5	Rubber Stock, Long Fluted Cyl., Oct. Brl., Saw Hdl.	1.85

N. B.—The above, 32 and 38, with Plain Cylinders, 5 cents less.

"Sterling (American) Bull-Dog," Double-Action or Self-Cocking.

832	½ CF	32	5	Rubber Stock, Long Fluted Cylinder, Saw Hdl.	1.80
338	½ CF	38	5	Rubber Stock, Long Fluted Cylinder, Saw Hdl.	1.80

Unique.

632	32	5	Rubber Stock, Long Fluted Cylinder, Octagon Barrel, Medallion of Lincoln on one side and Garfield on the other, Monogram on both sides, A. W. D. & Co.	1.75

Extra—Special Discounts.

	22 Cal.	32 Cal.	38 Cal.	D. A.	Unique.
Ivory Stocks.	$0.38	.50	.75	1.50	1.50
Pearl Stocks.	.80	1.40	1.70	3.00	3.00
Engraving...	.15	.40	.50	.75	.75

Remington B. L. Single-Barrel Shot Guns, No. 2 Model, by the hundred $7.00

S. C. MONCE,

Bristol, Conn., is the manufacturer of Monce's Novelty Glass Cutters, the different patterns of which are illustrated in his circular, the list being as follows, subject to a discount of 50 and 10 per cent.:

	Per gross.
No. 1, Assorted with extra care, Black or Bronze finish	$20.00
No. 2, Malleable Iron Handle, Putty Knife combined	20.00
No. 3, Putty Knife and Glass Cutter	11.00
No. 4, Same design as No. 3, only heavier	12.00
No. 5, Heavy, for cutting Plate Glass	12.00
No. 6, 3-inch Scale on Handle	10.75
No. 7, "Scientific"	11.00
No. 8, Similar to No. 13, only straight on the point where the latter is curved	12.00
No. 9, Combination of Glass Cutter, Knife Sharpener and Can Opener (10 gross in case)	12.50
No. 10, Same as No. 9, with Corkscrew added (10 gross in case)	14.00
In bulk, 500 in box, per 1000	$95.
No. 11, Combination of Glass Cutter, Knife Sharpener, Can Opener and Tack Hammer (10 gross in case)	12.50
No. 12, Same as No. 11, with Corkscrew added (10 gross in case)	14.00
In bulk, 500 in box, per 1000	$95.
No. 13, Putty Knife and Glass Cutter combined	12.00
No. 14, Combination of Pliers, Glass Cutter and Can Opener (5 gross in case)	18.50

He is manufacturer also of the Improved Interchangeable Lock Stencils, the list of which we give below. It is subject to a discount to the trade of 40 per cent.:

⅛-Inch.

Font No. 1, 2 A, 55 pieces, Letters	$0.72
Font No. 2, 2 A, 70 pieces, Letters and Figures	.91
Font No. 3, 3 A, 75 pieces, Letters	.98
Font No. 4, 3 A, 100 pieces, Letters and Figures	1.30
Alphabet complete, 32 pieces	.42
Figures, set 15 pieces	.30
Assorted to order, per 1000	13.00

Ink and Brush with fonts, 25 cents extra.

¾-Inch.

Font No. 1, 2 A, 55 pieces, Letters	$0.77
Font No. 2, 2 A, 70 pieces, Letters and Figures	.98
Font No. 3, 3 A, 75 pieces, Letters	1.05
Font No. 4, 3 A, 100 pieces, Letters and Figures	1.40
Alphabet complete, 32 pieces	.45
Figures, set 15 pieces	.31
Assorted to order, per 1000	14.00

Ink and Brush with fonts, 25 cents extra.

1-Inch.

Font No. 1, 2 A, 55 pieces, Letters	$0.85
Font No. 2, 2 A, 70 pieces, Letters and Figures	1.05
Font No. 3, 3 A, 75 pieces, Letters	1.13
Font No. 4, 3 A, 100 pieces, Letters and Figures	1.50
Alphabet complete, 32 pieces	.48
Figures, set 15 pieces	.23
Assorted to order, per 1000	15.00

Ink and Brush with fonts, 25 cents extra.

1½-Inch.

Font No. 1, 2 A, 55 pieces, Letters	$1.10
Font No. 2, 2 A, 70 pieces, Letters and Figures	1.40
Font No. 3, 3 A, 75 pieces, Letters	1.50
Font No. 4, 3 A, 100 pieces, Letters and Figures	2.00
Alphabet complete, 32 pieces	.64
Figures, set 15 pieces	.30
Assorted to order, per 1000	20.00

Ink and Brush with fonts, 25 cents extra.

Attention is called in a circular to the Interchangeable Lock Stencil Cases, of which three sizes are made, and of which the special features and advantages are enumerated.

TESTS OF AXES.

Apropos of the discussion as to the relative quality of American and English Axes and their adaptability to the requirements of the "colonial" trade, Messrs. John Yates & Co., English Axe makers, make this proposition to a dealer in the colonies who has asserted the inferiority of the English Axe:

Let Ford Brothers send us an order for a case of Wedge Axes. We will send it out on these conditions, that, if the Axes do not turn out like the American in shape, finish, &c., they shall return the Axes to us, with a case of one dozen Axes of American which they say are superior. We will pay all expenses connected with this transaction. Our Axes and the American Axes shall be examined by an independent party, and a report shall be made through your columns of the result, as we wish to have the Axes here, so that the difference can be pointed out and shown to an independent party.

This seems a fair proposition on the surface, but in view of past experience we should hardly advise Messrs. Ford Bros. to accept it, nor would we regard the result of such a test as at all conclusive. What better test or trial can there be of the relative merits of two articles or their relative adaptability to perform certain work than an actual test in practice? What better test of an Axe can there be than its use in the hands of the woodman? And is it to be supposed that "an independent party" in England would be as good and as impartial a judge or as well qualified to pass upon the merits of an Axe as the man who used it? We do not intend to intimate that such a test would not be made under what was supposed to be perfectly fair conditions, and that the "independent party" would not decide in accordance with what he supposed to be a correct standard of what an Axe should be; but just here is the difficuly not only as regards Axes, but many other articles. Many English manufacturers have a standard that they consider the correct one, and all the facts that can be shown will not convince them to the contrary. Be the demand for different qualities ever so loud it is not heeded; the old standard is adhered to, with a smile at the ignorance of the misguided customer who does not know what he wants, and who presumes to suggest that what the manufacturer thinks is the proper thing for England is not the proper thing for the whole world. Now, it is well known that the ordinary English standard of an Axe is not the American nor the one that sells in the colonies. The evolution of the Axe in England has been without doubt in the line of English requirements, but these are different from the American or the colonial, and the Axe to suit these markets must have those characteristics that meet the requirements of the consumers in them. We are told that a test of Axes frequently used in England is to cut a Nail; if it does that it is all right. The American way is to put the Axe to the extreme tests to which it is subjected in actual, use as near as may be, such as chopping wood knots, &c. It is because the English idea of what an Axe should be is so different from what the colonial idea is, and as it is probable that the comparative tests of the two Axes would be made on the line of this idea, that we believe Ford Bros. would be unwise to submit the Axes to such tests. Possibly John Yates & Co. differ so much from other Englishmen that they would not take such a course. We are only presuming that they would, basing our presumption on experience in other cases. Our readers will doubtless remember the excitement over the use of American Locks in a Government building in London some years since, and the ridiculous tests made of Locks by a committee of the Wolverhampton Chamber of Commerce. This doughty committee gravely took some American Cast Locks and threw them against a stone pillar, and struck others with a hammer. They broke, of course, while the English Wrought Locks only bent. On this test they solemnly reported that the English Locks were the best. The test was an absurd one. Locks are for protection, and when a thief gets where he can hit one with a hammer its protective mission is at an end. He has no occasion to break the Lock with a hammer; he has accomplished his design. In making tests, not only must the results be considered, but it must first of all be decided whether the test is of such a character as to display the qualities of the thing tested, in view of the use to which it is to be put and the conditions of that use.

GOULDS & AUSTIN,

manufacturers and jobbers of Pumps and Pipe, Brass Goods and Fittings, Belting, Hose, Packing, Railroad Supplies, &c., 167 and 169 Lake street, Chicago, in their catalogue, dated June 1, give a comprehensive and well-arranged line of these goods. In their introductory circular to the trade they mention that, as most of the goods embraced in this catalogue are well known to the trade, they have abridged descriptive matter as much as possible, especially as they issue circulars and pamphlets from time to time of nearly all their specialties. Where fuller descriptions than are given are desired they will be pleased to send them. They add that, being manufacturers of many of the goods represented, and manufacturers' agents for the remainder, they are enabled to put them in the hands of the trade without taking a middle profit. The list is accompanied by the following special discount sheet, July 1, in which attention is called to the fact that the prices given will hold good until September 1 only, subject to change without notice:

	Discount.
Steel Goods	60&10&10 %
Coke Forks	20 %
Ferules and Over Caps	25 %
Wood Barley Forks, 4-finger	doz. net, $4.25
Wood Barley Forks, 6-finger	doz. net, 5.00
Wood Hand Rakes, No. 0	doz. net, 1.45
Wood Hand Rakes, No. 1	doz. net, 1.25
Wood Hand Rakes, No. 2	doz. net, 1.25
Wood Hand Rakes, No. 3	doz. net, 1.25
Wood Hand Rakes, No. 4	doz. net, 2.15
Wood Hand Rakes, add for Mortise Heads, extra	doz. net, 10¢
Wood Handle Rakes, Oiling, extra	doz. net, 10¢
Handles, full stock, No. X	50&10 %
Snaths	40&5 %
Scythes	30&10 %
Hay Knives, Cyclone	doz. net, $14.00
Hay Knives, Lightning (should read Electric), Iron Back	doz. net, 8.50
Hay Knives, Lightning (should read Electric), Steel Back	doz. net, 11.00
Clipper Corn Knives	doz. net, 2.10
I X L Corn Knives	doz. net, 2.10
Empire Corn Knives	doz. net, 2.10
Grass Hooks, No. 2	doz. net, 2.50
Grass Hooks, No. 3	doz. net, 3.50
Grain Cradles	40&5 %
Cradle Fingers	doz. net, 75¢
Austin Shovels and Spades	30&10 %
Amesbury Shovels and Spades	40 %
Farmers' Friend Shovels and Spades	47½ %
Prosser Shovels and Spades, polished	50&10 %
Prosser Shovels and Spades, black	doz. net, $3.50
Austin Molders' Shovels	30 %
Austin Pacific Mining Shovels	20&5 %
Austin Coal Miners' Shovels	33⅓ %
Austin Coal Shovels	30

Austin Socket Steel Grain Scoops	50&10 %
Amesbury All Steel Grain Scoop (not listed, full polished, net, No. 4, $6.20; No. 5, $6.40; No. 6, $6.60; No. 7, $7.00; No. 8, $7.40; No. 10	$8.20
Nicolai Iron Grain Scoops	33⅓ %
Austin Steel Trimmers' Scoops	20 %
Austin Drain Spades	40&10 %
Drain Cleaners	40 %
Tile Layer	40 %
Austin Railroad and Tamping Shovels	20 %
Austin Lock Lever, Self-Dump Rake, 20-tooth, with pole or shafts, wood wheel	$18.00
Austin Lock Lever, Self-Dump Rake, 20-tooth, with pole or shafts, steel wheel	20.50
Austin Lock Lever, Self-Dump Rake, 30-tooth, wood wheel	25.00
New Hollingsworth Lock Lever, Self-Dump Rake, 20-tooth, with shafts or pole, wood wheel	21.00
New Hollingsworth Lock Lever Self-Dump Rake, with shafts or pole, steel wheels	25.00
New Hollingsworth Lock Lever Self-Dump Rake, 30-tooth, wood wheel	30.00
Greensburg Hay Rakes	net, $3.35
Tiffin Hay Rakes, 14-tooth	net, 3.30
Tiffin Hay Rakes, 16-tooth	net, 3.40
Barnes Hay Rakes, 16-tooth	net, 4.25
Austin Tedders	net, 35.00
Jordan Carriers	net, 4.00
Milwaukee Carriers	net, 3.50
Nellis Single Forks, each	net, 3.00
Nellis Double Forks, each	net, 2.50
Harris Double Forks, each	net, 1.00
Malleable Grapples	doz. net, 9.00
Knot Pulleys	doz. net, 3.50
Maple Sheave Pulleys, 5-in	doz. net, 2.00
Hanger Hooks	doz. net, .65
Floor Hooks	doz. net, .75
Turner's Combined Truck and Farm Wagon, No. 1	net, $18.00
Turner's Combined Truck and Farm Wagon, No. 2	net, 21.00
Turner's Binder Truck, No. 3	net, 10.00
Turner's Binder Truck, No. 4	net, 7.50
Poles for Trucks, when ordered	net, 1.50
Turner's Tight-fit Binder Covers	40&10 %
Turner's Tight-fit Separator Covers	25 %
Stack and General Purpose Covers, Bear duck	15 %
Stack and General Purpose Covers, West Point duck	30 %
Hay-Cock Covers	30 %
Diamond "E" Twine	pound net, 13½¢
Queen Cockle Mills	net, $ 7.50
Imp'vd, Two-section Land Roller, No. 1	net, 27.50
Imp'vd, Two-section Land Roller, No. 2	net, 30.00
Cahoon Power Seeder	net, 15.00
Cahoon Hand Seeder	net, 3.00
Hand Corn Planters Peerless, Champion and King of the Field	doz. net, 6.00
Hand Corn Kentucky	doz. net, 5.50
Hand Corn, one hand	doz. net, 13.50
Tony Shellers, plain	net, $6.00
Tony Shellers, with Fan	net, 6.60
Tony Shellers, Feed Table, extra	net, .40
Tony Shellers, plain, with Pulley	net, 7.00
Tony Shellers, two-hole, plain	net, 12.00
Tony Shellers, two-hole, plain, with Fan	net, 14.00
Tiffin Shellers, plain	net, 6.00
Tiffin Shellers, with Fan	net, 6.60
Tiffin Shellers, Feed Table, extra	net, .40
Tiffin Sheller, two-hole, plain	net, 12.00
Tiffin Sheller, two-hole, plain, with Fan	net, 14.00
Hocking Valley Sheller, plain	net, 6.00
Hocking Valley Sheller, with Fan	net, 6.50
Hocking Valley Sheller, Feed Table extra	net, .40
Hocking Valley Sheller, two-hole, complete	net, 15.00
Hocking Valley Sheller, with Cob Carrier	net, 19.00
Burrall Iron Shellers	net, 4.00
Buckeye Measures and Buckets	50&10 %
Senior and Junior, Powers and Jacks	15 %
Racine Farm Mills	50&10 %
Racine Farm Mills, extras	50 %
Racine Warehouse Mills	35 %
Racine Warehouse Mills, extras	50 %
Racine Dustless Separators	30 %
Nichols Corn Crusher	25 %
Peckham's Furnaces and Caldrons	20&5 %
Peerless Feed Mills	net, $30.00
Farmer's Friend Mills	net, 20.00
Challenge Feed Mills	40%
Challenge Iron Feed Mills	30 %
Scientific Feed Mills	30 %
Milwaukee Granulators	10 %
Bradford Portable Mills	20 %
Hocking Valley Cutters	40 %
Lever Feed Cutters	net, $3.25
Ross Feed Cutters	40 %
Lard Presses	35 %
Cider Mills, Senior	net, $20.00
Cider Mills, Junior	net, 17.00
New Series Bell Mill	57½ %
Paragon Mill, No. 1	60&10&10 %
Paragon Mill, Nos. 2 and 3	60&5 %
Eclipse Mill, No. 1	60 %
Eclipse Mill, No. 2	60&10 %
Cook's Pans	60 %
Cook's Portable Evaporators	60 %
Cook's Portable Furnace	60 %
Furnace Doors and Grates	25 %
Bell's Pans, Nos. 2, 3 and 4	60&10 %
Bell's Pans, Nos. 5 and 6	67½ %
Bell's Pans, Sheet Brass, No. 1	60 %
Bell's Pans, Sheet Brass, Balance	60&10 %
Bell's Pans, Copper	60&5 %
Furnaces alone	60 %
Bell's Portable Evaporators	60 %
Frederick's Equalizers	doz., net, $17.00
Common Double Trees	doz., net, 12.00
Thompson's Rigid Trace Harness	set, net, 2.50
Wilson's Road Carts	33⅓ %
C Spring Buckboards, No. 52, with Shafts	net, $40.00
C Spring Buckboards, No. 51, with Shafts	net, 38.00
Lazy Back	extra, net, 2.00
Pole, extra	net, 7.50
Square Box Cutters, Raw Silk or Velour	net, 16.00
Square Box Cutters, Brussels	net, 17.00
Two-Seated Square Box Sleighs, with good quality Corduroy (not illustrated)	net, 35.00
Swell Body Cutters, Raw Silk	net, 23.00
Swell Body Cutters, Brussels, with Nickel-Plated Line Rail	net, 24.00
Swell Body Cutters, Car Plush, with Nickel-Plated Line Rail	net, 29.00
Portland Cutters, best Car Plush, extra fine finish, with Plated Line Rail	net, 40.00
Portland Cutters, with top, Plush, extra fine finish, with Plated Line Rail	net, 55.00
Two-Seated Swell Cutter, best Car Plush, extra fine finish, large size and heavily ironed, for livery use	85.00
Two-Seated Swell Cutter, best Car Plush, extra fine finish, for family use	75.00
Two-Seated Portland Cutter, best Car Plush, extra fine finish	net, 100.00
Light Express Bobs	net, 18.00
Platform Pleasure Bobs, Worsted or Brussels	net, 40.00
Platform Pleasure Bobs, Raw Silk or Velvet	net, 38.00
One-Horse Bob Sleigh	net, 19.00
Knee Bob Sleigh	net, 21.00
Bench Bob Sleigh	net, 20.00
One-Beam Maine Bob Sleigh	net, 22.50
Heavy Logging Sleigh	On application
Abbott's Runner Attachment	10 %
Common Barrows, Wood Wheel, Bent Felloe	doz., net, $11.00
New Ingham Barrows, Wood Wheel	net, 13.50
New Ingham Barrows, Iron Wheel	net, 15.50
Climax Barrows, Wood Wheel	net, 14.50
Climax Barrows, Iron Wheel	net, 16.50
Lansing Barrows, Wood Wheel	net, 18.00
Lansing Barrows, Iron Wheel	net, 20.00
Capital Barrows, Wood Wheel	net, 20.00
Capital Barrows, Iron Wheel	net, 22.00
Globe Garden Barrows, Wood Wheel	net, 28.50
Globe Garden Barrows, Steel Wheel	net, 33.00
Star Garden Barrows, Wood Wheel	net, 27.00
Star Garden Barrows, Steel Wheel	net, 31.50
Stone Barrows, B. H. Wood Wheel	net, 36.00
Stone Barrows, B. H., with Jacob's Patent Wheel	net, 38.00
Steel Tray Stone Barrows	net, 6.00
Wood Stave or Bark Barrows	net, 4.00
Brick Barrows, each	net, 6.00
K. & J. Mortar Barrows	doz., net, 28.00
Steel Tray Barrows, No. 1	net, 4.50
Steel Tray Barrows, No. 2	net, 5.50
Tubular Barrows	35 %
Brick and Mortar Hods	33⅓ %
Barrel Carts	10 %
Excelsior Mowers	40&10 %
Clipper Mowers	40&10 %
Horse Mowers	40 %
Steel Bottom Scrapers, 30-inch	net, $3.80
Steel Bottom Scrapers, 32-inch	net, 3.90
Steel Bottom Scrapers, 34-inch	net, 4.00
Slusser All Steel Scrapers, No. 1	net, 6.50
Slusser All Steel Scrapers, No. 2	net, 6.00
Slusser All Steel Scrapers, No. 3	net, 5.50
Columbus Solid Steel Scrapers, No. 1	net, 6.50
Columbus Solid Steel Scrapers, No. 2	net, 6.00
Columbus Solid Steel Scrapers, No. 3	net, 5.50
Runners for Columbus Scrapers, extra, per pair	net, .50
Chicago Scraper and Ditcher	25 %
Stearns' Wheel Scraper	15 %
Columbus Excavating Cart	net, $55.00
Township or Breaking Plow, Nos. 5 or 15	net, 15.00

Road or Grading Plow, Nos. 3 or 13	net, 19.00
Mammoth Railroad Plow	net, 45.00
Hand Carts	33⅓ %
Reynolds Warehouse Truck	33⅓ %
Warehouse and Store Truck, Nos. 0 and 1	50&10 %
Warehouse and Store Truck, Nos. 2 and 3	60 %
Wagon Trucks	50 %
Railroad and Packing House Trucks	60&10 %
Grain and Meat Wagons	50&10 %
Barrel Trucks	60 %
Bag Trucks	net $1.80
Baggage Barrows, Curved Pattern	45 %
Baggage Barrows, Sloping Back Pattern	40 %
Baggage Wagons	45 %
Express Wagons	50&10 %
Railroad Velocipedes	net, $3[illegible].00
Kalamazoo Section Hand Cars	net, 50.00
Narrow Gauge Hand Car	net, 50.00
Telegraph Hand Car	net, 50.00
Circular Saws, Inserted Tooth	10 %
Repairing and Inserting Teeth	net list
Solid Circular Saws	40 %
Solid Top Saws	40 %
Solid Edger Saws	40 %
Solid Shingle Saws	40 %
Solid Resawing Saws	40 %
Ice, Mulay, Gang, Drag and Mill Saws	40 %
Cross-Cut Saws	30 %
One Man Saws	20 %
Mixter's Gummers	net
Swages	net
Cast Pulleys	40 %
Shafting	40 %
Medart Pulleys	40 %
Hangers, Boxes, &c	25 %
Malleable Tackle Blocks	40&10 %
Buffalo Forges	45 %
Skinner Engines and Boilers	25&10 %
Paragon Engines	12½ %
Monarch Engines	10 %
Horizontal Engine and Boiler Combined	10 %
Peerless Engines and Boilers	10 %
Vertical Tubular Boilers	10 %
Davey Safety Engine	5 %
Gardner Governors	20 %
Buffalo Duplex Pumps	15 %
Royal Boiler Feeders	25 %
Reed Jet Pumps	60&10 %
Duplex and Union Injectors	50 %
Titan and Mogul Injectors	45 %
Centrifugal Pumps	25 %
Centrifugal Steam Pumps	20 %
Spiral Pipe and Fittings	40 %
Wrought-Iron Pipe, Black, 1¼ and smaller	50 %
Wrought-Iron Pipe, Black, 1½ and larger	65 %
Wrought-Iron Pipe, Galvanized, 1¼ and smaller	40 %
Wrought-Iron Pipe, Galvanized, 1½ and larger	50 %
Well Casing	50 %
Boiler Tubes	50&10 %
Cast-Iron Fittings	70 %
Plugs and Bushings	75 %
Branch Tees	70 %
Hook Plates, Ceiling Plates, Pipe Hangers	60 %
Floor Plates and Beam Hooks	60 %
Return Bends	70 %
Wrought Couplings	70 %
Nipples	75 %
Unions	67½ %
Malleable Piece Fittings	70 %
Long Screws	50 %
Malleable Fittings, pound list	33⅓ %
Cast-Iron Flanges	67½ %
Iron Body Valves	70&5 %
Brass Valves and Cocks	70&5 %
Brass Three-Way Cocks	67½ %
Iron Cocks	70&5 %
Iron Three-Way Cocks	67½ %
Safety and Hose Valves	70&5 %
Butterfly Valves	60&10 %
Engine Trimmings	70 %
Steam Bibbs and Air Cocks	70 %
Davis Air Valves	25 %
Water Gauges, Rough Body	70 %
Water Gauges, Finished Body	60&10 %
Gauge Glasses	80 %
Oil Cups	70 %
Whistles and Valves	70 %
Whistles, Mocking-Bird Pattern	60 %
Chime Whistles	20 %
Steam Gauges	50 %
No. 10 Bourdon	net, $2
Lunkenheimer Regrinding Valves	60&5 %
Lunkenheimer Regrinding Radiator Valves	60 %
Lunkenheimer Peet Valves	50 %
Lunkenheimer Throttle Valves	50 %
Lunkenheimer Pop Safety Valves	50 %
Hammer's Automatic Cylinder Cocks	50 %
Cody Oilers	50 %
Loose Pulley Oilers	doz., net, $17
Hinge Top Oilers	60 %
Glass Oil Cups	50 %
Automatic Oil Cups	50 %
Thompson's Oil Pump	50 %
Index Lever Oil Cups	50 %
Automatic Oil Feeders	50 %
Lunkenheimer's Sight Feed Lubricator	50 %
Baxter Wrenches	25 %
Bemis & Call Wrenches	35 %
Rouse Wrenches	37½ %
Alligator Wrenches	47½ %
Stillson Wrenches	37½ %
Gas Plyers	60 %
Common Tongs	55 %
Brown's Tongs	55 %
Acme Tongs	50 %
Robbins Tongs	10 %
Lifting and Sliding Tongs	50 %
Barnes' Wheel Cutters	50 %
Stanwood Cutter	60 %
Saunders' Cutters	47½ %
Walworth Die Plates and Dies	62½ %
Taps, 70; Reamers	57½ %
Duplex Stocks	35 %
Lightning Dies and Collets	$1.90
Lightning Taps	net
Pump Plates	60 %
Forbes Die Stock	net
Pipe Machine	20 %
Ratchets and Wrenches	40 %
Angle Vises, No. 1	50 %
Angle Vises, Nos. 2 and 3	45 %
Malleable Vise	40 %
Smith's Vise	42½ %
Little's Pipe Holder	10 %
Watson Pipe Lifter	25 %
Rubber Belting, N. Y. B. & P. Co.'s Extra Standard	50&10 %
Rubber Belting, N. Y. B. & P. Co.'s Standard	60&5 %
Rubber Belting, Our Special Crown Brand, Full Rolls	70&5 %
Rubber Belting, Our Special Crown Brand, Cut	70 %
Rubber Hose, N. Y. B. & P. Co.'s Standard	60 %
Rubber Hose, Our Special Crown Brand, Extra	60&10 %
Standard, ½ and ¾	70&10 %
Standard, 1 in. and over	70 %
Competition Hose, ¾ x 3-ply, only	net 6½¢

We furnish ¾ x 3-ply Hose, wrapped with Wire, at following net prices:

¾ x 3, N. Y. B. & P. Co.'s	foot, 16¢
¾ x 3, Crown Brand	foot, 14¢
¾ x 3, Competition	foot, 10¢
Steam Hose, Extra Heavy, N. Y. B. & P. Co.'s	50 %
Brewer's Hose, Extra Heavy, N. Y. B. & P. Co.'s	50&5 %
Wire and Smooth Bore Suction Hose, N. Y. B. & P. Co.'s	50 %
Wire and Smooth Bore Suction Hose, Our Special Crown Brand	60&10 %
Hard Rubber Suction Hose, N. Y. B. & P. Co.'s	60 %
Hard Rubber Suction Hose, Our Special Crown Brand	60&10 %
Test Hose, N. Y. B. & P. Co.'s	write for prices
Cable Hose, N. Y. B. & P. Co.'s	25 %
Linen Hose, N. Y. B. & P. Co.'s	30 %
Linen Hose, Empire Brand, N. Y. B. & P. Co.'s	30 %
Empire Steam Packing, N. Y. B. & P. Co.'s	60 %
Our Special Crown Brand Packing	70 %
Gaskets and Rings, Fibrous and C. I., N. Y. B. & P. Co.'s	50 %
Pure Sheet Packing or Valve Gum, N. Y. B. & P. Co.'s	50&10 %
Pure Valves, Gaskets and Rings, N. Y. B. & P. Co.'s	50&10 %
Round and Square Piston Packing, N. Y. B. & P. Co.'s	50&10 %
Square Piston Packing, Rubber Back, N. Y. B. & P. Co.'s	50&10 %
Tuck's Round Piston Packing, Rubber Core, N. Y. B. & P. Co.'s	50&10 %
Salamanda Packing, N. Y. B. & P. Co.'s	35 %
Ball Valves, N. Y. B. & P. Co.'s	50 %
Tubing, N. Y. B. & P. Co.'s, extra quality	50 %
Tubing, N. Y. B. & P. Co.'s, Machine made, Plain and Corrugated	60&5 %
Pure Rubber Cement, N. Y. B. & P. Co.'s	40 %
Car Springs, Wagon Springs, &c	special
Emery Wheels, Vulcanite, N. Y. B. & P. Co.'s	15 %
Leather Belting, Williams's Pure Oak Tanned Extra Standard	50 %
Standard Belting, Williams's Pure Oak Tanned	50&10 %
Agricultural Extra, Williams's Pure Oak Tan'd	65 %
Agricultural Second Quality, Williams's Pure Oak Tanned	70 %
Round Leather Belt, ⅛, 3-16, ¼ and 5-16, only solid	50&10 %

Twist Leather Belt, 3-16 to ½ in	55 %
⅝ and ¾	50 %
Other sizes	40 %
Lace Leather Pages in sides, per pound	48¢
Lace Leather Pages cut	60 %
Lace Leather Raw Hide in sides	net sq. foot, 25¢
Lace Leather Raw Hide cut	40 %
Underwood Cotton Leather Belting	50&5 %
Elevator Buckets, Excelsior Mill	50&10 %
Excelsior Rivet Buckets	40 %
Excelsior Corn Bucket	30 %
Corrugated Bolts, per 1000	net, $6.25
Button Head or Norway Iron Bolts, per 1000	net, $8.50
Laminate Scoops	20 %
Asbestos Material	20 %
American Hemp, extra	net, 12¢
Italian Hemp	net, 15¢
Soap Stone Packing	net, 14¢
Candle Wick	net, 19¢
Cotton Waste, White, No. 1	net, 9¢
Colored, No. 1	net, 7¢
Blake's Studs	20&5 %
Rivets and Burrs	60 %
Oval Point Belt Hooks	75 %
Standard Belt Fasteners	40 %
Round Belt Couplings and Punches	40 %
Belt Cutters, &c	10 %
Hose Pipes	60&10 %
Gem Spray Pipe	50 %
Boss Hose Pipe	50&10 %
Fuller Hose Pipe	33⅓ %
Magic	50 %
Hose Couplings and Bands	60&10 %
Caldwell Hose Straps and Fasteners	45 %
Hose Nipples	60 %
Hose Splicers	50 %
Hose Caps	60 %
Hose Sprinklers	60 %
Lawn Sprinklers	50 %
Holly Hose Carts	50 %
Success Hose Carts	50 %
Fountain Hose Carts	50 %
Prize Hose Carts	60 %
Water Goods	60&10 %
Sinks, &c	60 %
Columbus Steel Sinks, Painted	25&10 %
Galvanized	35 %
Enameled	50 %
Globe Ventilators	40 %
Lead Pipe, 5¼; Sheet Lead, 5¾	30 days, 10&5 %
Star Hydrants and Street Washers	60 %
Star Wall Hydrants	50&10 %
Curb Boxes	50&10 %
Drilling Machine	20 %
Drilling Machine	12½ %
Hydraulic Outfits	20 %
Tube Well Machines	10 %
Horse Power and Jack	25 %
Paddy Drills	20 %
Expansion Drills	15 %
Drills, Fig. A32 and A33	45 %
Drills, Fig A34	15 %
Drills, Fig. A35 and A36	45 %
Drills, Fig. A37	net
Drills, Fig. A39	25 %
Steel Shoes	50 %
Valve Grab	45 %
Stuffing Box, Fig. 707	35 %
Brass Stuffing Boxes	25 %
Hollow Hydraulic Rods	40 %
Wood Rod Couplings, plain, per set	net, 12½¢
Wood Rod Couplings, Galvanized	18¢
Chapman Valves, 2 inches, per set	$2.00
Chapman Valves, balance	50 %
Blind Valves	40 %
Steel Drive Heads	40 %
Casing Swivel	40 %
Casing and Pipe Puller, Fig. A49	20 %
American Pipe Puller	15 %
Fig. A51, Rope and Grab Hook	40 %
N. & L. Combinations, 2 in., net	net, $12.00
N. & L. Combinations, balance	40 %
N. & L. Short Combination, 2 in	net, $7.00
N. & L. Short Combination, balance	40 %
Tube-Well Cylinder, Fig. A56, 2 in	net, $8.00
Tube-Well Cylinder, balance	40 %
Brass Cylinder, Fig. A57	20 %
Augers, Figs. A58 and A59	50 %
Drill Jars	40 %
Hercules Drilling Machines	15 %
Rock Drilling Tools	20 %
Ajax Engine	20 %
Challenge Augers	10 %
Newman Augers	10 %
Auger Tools	15 %
Wood Pumps	60 %
Chain Pump Material	50&10 %

The following discounts on Iron Pumps are for acceptance only until September 1st, 1885. Orders mailed after that date will be charged at regular rates, without further notice.

Cistern Pumps, Fig. 200	60&10 %
Pitcher Pumps, Fig. 205½	70&5 %
Set Length Pump	60&10 %
Set Length Force Pumps	60 %
Deep Well Standards	50&10 %
Cylinders, except as below	75 %
Cylinders, Fig. 615	60&10&10 %
Cylinders, Fig. 621	50 %
Foot Valves, Figs. 471, 472, 473	60&10 %
Foot and Check Valves, Figs. 474, 475, 476	50&10 %
Foot and Check Valves, Figs. 667, 760 and 742	60 %
Globe Strainers	40 %
Strainers, Figs. 658, 659 and 660	60&10 %
Float Valves and Floats	50 %
Rod Couplings, Plain, ⅜ and 7-16, per lb	net, 16¢
Rod Couplings, Gavanized, ⅜ and 7-16 per lb	net, 20¢
Rod Couplings, Brass, ⅜ and 7-16 per lb	net, 40¢
Gas-Pipe Coupling and Guides	40 %
Washer Points	50&10 %
Radial Center Points	40&10 %
Brass Jacket Points, 1¼ x 24 x 80 inches, Nos. 50 or 60, Gauze	per doz. net, $12.00
Brass Jacket Points, balance of list	60&10 %
Drive Heads, Iron and Steel	25 %
Drive Heads, Malleable Caps	50 %
Drive Heads, Hardwood Caps	25 %
Mauls (not listed) for Driving Pipe, 12 lb	55¢
Mauls (not listed) for Driving Pipe, 14 lb	60¢
Mauls (not listed) for Driving Pipe, 16 lb	65¢
Goose Necks, Air Chambers and Cocks	50 %
New Star W. M. Standard, Fig. 762, 6 inch stroke, No. 3	net, $2.25
New Star W. M. Standard, Fig. 762, 6 inch stroke, No. 4	net, 2.50
New Star W. M. Standard, Fig. 762, 6 inch stroke, No. 5	net, 2.75
New Star W. M. Standard, Fig. 762, 10 inch stroke, No. 4	net, 2.75
New Star W. M. Standard, Fig. 762, 10 inch stroke, No. 5	net, 3.00
W. M. Standards, Figs. 412 and 733	60 %
W. M. Standards, Fig. 764	50&10 %
W. M. Standards, Fig. 422	60 %
W. M. Standards, Fig. 423	60 %
W. M. Standards, Figs. 401, 402 and 765	50&10 %
W. M. Three-way Standard, Fig. 670	60 %
W. M. Three-way Standard, Fig. 736, 6 inch stroke	net, $7.50
W. M. Three-way Standard, Fig. 736, 2 x 10	net, 8.00
W. M. Working Heads	40 %
W. M. Heads, Fig. 447	60&10 %
W. M. Heads, Fig. 448	40&10 %
Double Acting W. M. Pumps, Figs. 638 and 629	30&10 %
Syphon Working Barrels, Figs. 514 and 776	40&10 %
Well Pump Head and Deep Well Cylinder	40 %
Hand Force Pumps, Iron	50&10 %
Hand Force Pumps, Brass	50 %
Vertical Power Piston Pump	40&10 %
Globe Double Acting Pump	25 %
Single Acting House Force Pump, Iron	47½ %
Single Acting House Force Pump, Brass	50&10 %
Double Acting House Force Pump, Iron	45 %
Double Acting House Force Pump, Brass	40 %
Star R. R. Force Pumps	40&5 %
Meteor Double Acting Force Pump	50 %
Counter Shafts	25 %
Cornish Mine Pump Head	30 %
Flanged Deep Well Cylinder	30 %
Cornish Mine Cylinders	30 %
Alert Double Acting Pump	50&10 %
Challenge Double Acting Pump	40 %
Monitor Combined Pump	40 %
Challenge Double Acting Power Pump	40 %
Alert Double Acting Power Pump	35 %
Challenge Double Acting Pulley Pumps	30 %
Brass Two Cylinder Ship Pumps	25 %
Close Top Two Cylinder Pumps	30&10 %
Open Top Two Cylinder Pumps	35 %
Deluge Bilge Pump	40 %
Hand Boiler Feed Pump	40 %
Power Boiler Feed Pump	35 %
Hand Pressure Pump	25 %
Power Boiler Feed Pump	35 %
Power Boiler Feed Pump	25 %
Power Boiler Feed Pump	35 %
Hand Rotary Pump	40 %
Hand Rotary Barrel Pump	35 %
Power Rotary Pump	40 %
Power Geared Rotary Pump	25 %
Power Geared Rotary Pump	20 %
Portable Garden Pumps	45 %
Portable Force Pumps	25 %
Union Hand Engines	special

Pacific Portable Force Pump	30 %
Brass Air Pump	30 %
Plumbers' Force Pump	50&10 %
Plumbers' Drip Pump	50 %
Air Pump	25 %
Beer Pump	40 %
Test Pump	40 %
Hydraulic Rams	40 %
Meneely Bells, per lb	net, 28¢
Meneely Bells, Hangings	20 %
Western Bells, per lb	net, 25¢
Western Bells, Hangings	20 %
Steel Amalgam Bells, Fig. 758	70 %
Steel Amalgam Church Bells, Fig. 353	40 %
Wrought Iron Jack Screws	70 %
Cast Iron Jack Screws	net, $2.00 %
Wrought Iron and Cast Iron Cider Press Screws	50 %
Pump Repairs	50 %

We also carry in stock the following items not listed in our catalogue. Circulars describing these goods will be sent on application:

Climax Mowing Machine Oil (in cases of 1 doz. quart cans, with Spring Bottom and Spout), per case, net	$3.50
Little Giant Lubricating Oil (in cases of 24 ½-pint cans, with Spring Bottom and Spout), per case, net	3.50
Hamilton Potato Digger	12.00
Kain's Patent Three-Section Folding Harrows, mounted on Runners	12.00
Combined Barrel and Hand-Cart, Complete	9.50
Combined Barrel and Hand-Cart, without Box	7.00
Extra Set of Castings, where two Barrels are wanted, net	.50
Star Grain Drill, 8 Hoe	42.50
Star Grain Drill, 6 Hoe	15.50
Star Grain Drill, 5 Hoe (1 Box)	14.50
Star Grain Drill, 5 Hoe (3 Box)	14.50
Star Grain Drill, Straight Line, 1 Box, 5 Hoe	16.00
Star Grain Drill, New Style, 3 Hoe	13.50
Little Hocking Valley Wheat Drill	14.50

St. Louis.

St. Louis, Mo., July 27, 1885.

The hot weather of the past week has not been favorable to activity of any kind, and its effects are generally observable in all branches of commerce, particularly in manufactures. The death of General Grant may be considered another cause of abstraction. Local failures during the week do not affect the Iron and Hardware trades. The large interests in the cattle trade of the Indian Territory, both of capitalists and merchants, have aroused opposition to what has been called "eviction" of the cattle men, but it is not believed that their remonstrances will obtain more than an additional time for removal. The Barbed-Wire makers expect some large orders in consequence of change of location of the ranches. The scarcity of freight and competition between Eastern lines have brought about the usual termination of tariff rates, and the rates of the 13th inst. are off. Work in foundries and machine shops is light.

Hardware.—Demand for Builders' Hardware has decreased somewhat, in sympathy with building. Other lines, however, make amends for the difference, and there has been a slight increase in volume of business done.

Nails.—The situation at Belleville has taken a somewhat favorable turn since the success of the Western Nail Company in obtaining nailers at the prices offered. The substitution of feeders for nailers in Wheeling will probably cause a feeling of distrust that will tend to early action on the part of the nailers. The Belleville Nail Company, after signing the scale of the Amalgamated Association, shut down their mill. The stocks of most wholesale dealers need replenishing, especially with Steel Nails. Prices at stores, $2.25 for Iron and $2.50 for Steel.

Merchant Iron.—There is a fair demand, and prices are without material change at local stores, although some concessions by mills for round lots have been made.

Wire.—Actual prices of recent sales of Wire for barbing are kept *sub rosa*, the usually talkative "moonshiner" discreetly preferring not to make known his advantage. The feeling prevails that prices are extremely low, but, as there seems to be nothing in the near future that will cause an advance, there are no orders being placed for such quantities as have been common in the past in anticipation of the fall trade.

Barbed Wire.—Work in the Barbed-Wire factories follows the orders, most manufacturers carrying only a small stock of Barbed or Plain Wire. There have been some inquiries for round lots from the Southwest, but the demand is unsatisfactory, especially for the unlicensed Wire. As to the licensed manufacturers distressing the moonshiners (in the language of their circular of 17th inst.) by any action of theirs, there is little alarm. The moonshiners' distress at present is more likely to arise from competition among themselves, and in the future from injunctions in this district similar to those granted in Iowa.

Lead.—Compared to the steady advance during the previous three weeks, the prices of the past week show a lack of strength, $4 not having been firmly maintained. Sales are mostly for small lots, the local consumers, especially the corroders, making good their assertions of holding aloof, and a dull market for White Lead is, of course, in favor of corroders. Sales of Refined were reported at $3.95 @ $3.97.

Spelter.—As much of the Western Spelter is used in galvanizing Wire there is little prospect of improvement until an increase for that article arises.

The Machinery, &c., of the Merchants' Barbed Wire Company was sold at auction on the 21st inst. by the receiver of the Harrison Wire Company.

The receiver of the Harrison Wire Company, in the case of A. B. Hart, has closed all matters referring to the bonded property and has been duly discharged. The works now belong to the holders of the first-mortgage bonds.

On the 21st inst. the following were elected Board of Directors of the St. Louis Car Wheel Company: J. H. Bass, of Fort Wayne, Ind.; John M. Dutro, E. H. Linley, R. W. Green and John I. White, of St. Louis. Mr. Green succeeds T. C. Dutro, formerly vice-president and manager.

W. H. Shields, 305 Olive street, St. Louis, reports as follows, under date of July 27, 1885: There is considerable inquiry—some from speculators—and a better feeling generally, and, while some brands and grades are held quite firm, with less inclination to make concessions, there is no quotable advance in prices:

Charcoal Foundry.	
Missouri	$14.50 @ $16.50
Southern	17.00 @ 18.50
Coal and Coke Foundry.	
Missouri	14.50 @ 15.50
Southern	15.00 @ 17.00
American Scotch	17.00 @ 20.00
Mill Iron.	
Missouri	14.00 @ 14.50
Southern	13.50 @ 14.00
Car-Wheel and Malleable.	
Southern	20.00 @ 24.00
Lake Superior	21.00 @ 23.00
Scrap.	
Old Car Wheels	14.00 @ 15.00
Old Rails	16.50 @ 17.00

Louisville.

W. B. Belknap & Co., Louisville, under date of July 27, 1885, report as follows: The improvement in general business mentioned in our last continues. Orders come in with a steadiness that indicates actual consumption of goods bought, and collections are fairly good. Manufacturers of jeans—a large interest here—report satisfactory orders, and a hardening in values that is encouraging. One after another the staples seem falling into line, Iron still remaining an unhappy exception. The depression in this is aggravated by the struggle between the two producing sections, North and South, for supremacy, and by the substitution of Steel in so large a measure for even ordinary purposes. Still the movement in Bar Iron is unquestionably freer than for some time heretofore, and it may result in improved prices before a great while. There is little to note in the various kinds of Iron. The extreme heat under which we have sweltered the past fortnight has not stimulated trade in any branches save lemons, watermelons and ice. *Nails* are becoming daily more scarce, but there is no alarm about them, and what with swapping among merchants and buying in small lots the stocks in store have been made to stretch out surprisingly. While there is no promise of immediate resumption of work, it is pretty well understood that as soon as the mills are ready they will go in with feeders to take the nailers' places if the latter do not come to terms. The great discrepancy in price just now has forced a return to the Iron Nails, but the demand for Steel is pretty generally recognized in the fact that many manufacturers are preparing, when they do resume, to cut Steel altogether. As soon as the manufacture becomes general, however, the special advantages which now pertains to the retailer will be lost. *Wire.*—Demand only fair. Since the late decisions there has developed an increased inquiry for licensed Wire. In consequence the moonshiners have dropped their prices to very temptingly low figures—all the while pooh-poohing any importance as attaching to the legal aspect of the case. *Metals.*—The advance in Lead and Tin has created a demand for both. Solder and the various Babbitt mixtures are higher, in sympathy. Pope's New York circular is in the general line of testimony to an improved condition of affairs. An ex-cathedra document of this kind is specially reassuring. A price list just received from Pittsburgh shows an advance of some of the leading sizes of Boat and Hook Head Spikes. We may have more to add to the list next week.

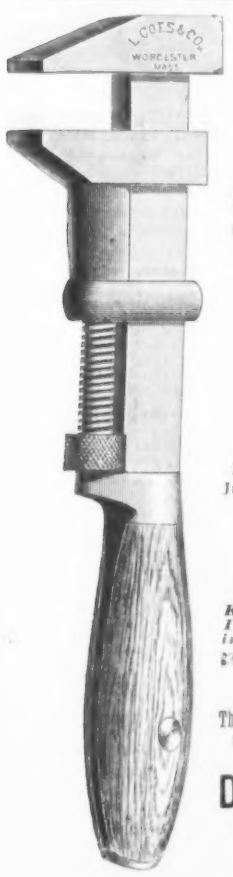
George H. Hull & Co., of Louisville, report to us as follows, under date of July 27, 1885: *Pig Iron.*—The general market for Pig Iron looks more favorable this week than last. Some of the Southern furnaces have sold several thousand tons of Iron to Eastern parties, which relieves them of unsold stock on hand. They have therefore stiffened up prices on irregular grades as well as regular, and the outlook is more encouraging. Offers made this week at 50¢ ₱ ton above prices that would have been accepted 10 days ago have been declined. We quote for cash, in round lots, as below:

Pig Iron.	
Southern Coke, No. 1 Foundry	$16.00 @ 17.00
" No. 2 "	15.00 @ 15.50
" No. 2½ "	13.50 @ 14.50
Hanging Rock Coke, No. 1 Foundry	16.00 @ 17.00
Hanging Rock Charcoal, No. 1 Foundry	20.00 @ 21.00
Southern Charcoal, No. 1 Foundry	18.00 @ 19.00
Silver Gray, different grades	14.00 @ 15.00
Southern Coke, No. 1 Mill, Neutral	13.50 @ 14.00
" " No. 2 " "	12.50 @ 13.00
" " No. 1 " Cold Short	13.00 @ 13.50
Southern Charcoal, No. 1 Mill	16.00 @ 17.50
White and Mottled, different grades	11.00 @ 12.00
Southern Car-Wheel, standard brands	23.00 @ 25.00
Southern Car-Wheel, other brands	18.00 @ 20.00
Hanging Rock, Cold-blast	23.00 @ 25.00
" Warm-blast	18.00 @ 20.00

Old Material.—The Scrap-Iron market still continues very dull, and prices are weaker. Offers made a shade under our quotations would probably be accepted. We quote for cash as below:

Rails, ₱ ton	$16.00 @ $16.50
Wheels, ₱ ton	13.00 @ 13.50
No. 1 Wrought, ₱ 100	.70 @ .85
No. 1 Cast, ₱ 100	.50 @ .55
Country Wrought, ₱ 100	.50 @ .60
Boilers, cut, ₱ 100	.60 @ .65
Boilers, uncut, ₱ 100	.40 @ .50
Axles, ₱ 100	.90 @ .95
Flues, Tanks and Sheets, ₱ 100	.30 @
Burned Scrap, ₱ 100	.20 @ .30

A remarkably successful shaft-sinking with the Kind-Chaudron apparatus has just been effected at the Gneisenau Colliery, Westphalia. The water-bearing stratum to be passed through is 730 feet thick. The difficulties to be encountered in this sinking were sufficient to deter all but the boldest spirits. But there were enterprising and resolute men to undertake the task, and their efforts have been crowned with complete success. The two shafts have, almost without a hitch in their progress, been carried down through the marl bed and securely tubbed. The progress has been slow, but the difficulties to be overcome were unusually great.



L. COES'

GENUINE IMPROVED

Knife Handle

PATENT

Screw Wrenches

MANUFACTURED BY

L. COES & CO.,

Worcester, Mass.

ESTABLISHED IN 1839.

Patented July 6, 1880. Patented July 8, 1884.

Registered March 31, 1874

Sectional view illustrates our NEW KNIFE HANDLE, showing Malleable Iron Frame and Shank of Bar keyed into position.

Straight Bar, Extra LONG NUT FOR SCREW IN JAW.

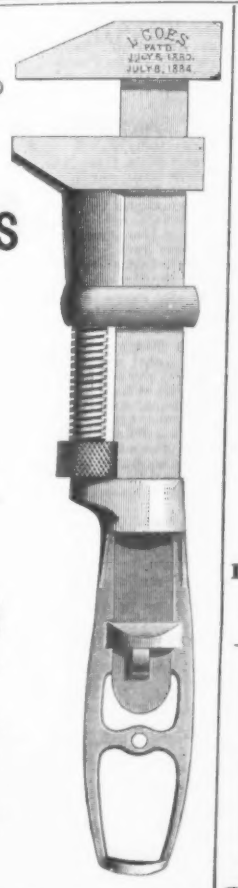
The Best Made and Strongest Wrench in the Market.

Send for Illustrated Price List and Circular.

DURRIE & McCARTY,

NEW YORK,

Sole Agents.



NIMICK & BRITTAN MFC. CO.,

PITTSBURGH, PA.,

BUILDERS' FINE HARDWARE,

RIM AND MORTISE DOOR LOCKS WITH

BURGLAR-PROOF ATTACHMENT.

GENUINE BRONZE AND IMITATION BRONZE KNOBS, &c., &c.

Mathes' Patent Burglar-Proof Sash Locks.

PADLOCKS.

TEA, COUNTER, UNION AND PLATFORM SCALES.

Catalogues and Lists furnished on application.

JOHN H. GRAHAM & CO., Agents, 113 Chambers St., New York.

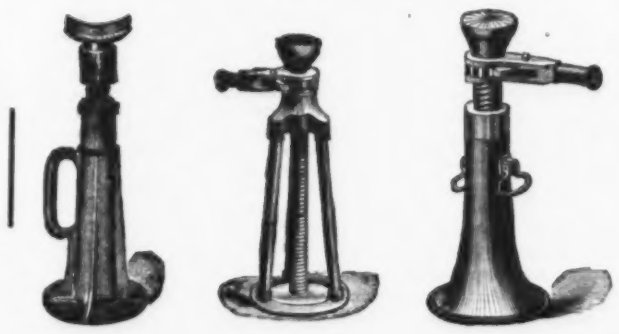
ILLINOIS IRON & BOLT CO.,

Nos. 20 to 26 Main Street,

CARPENTERSVILLE, KANE CO., ILL.

MANUFACTURERS OF

Blacksmiths' Tools, Thimble Skeins,



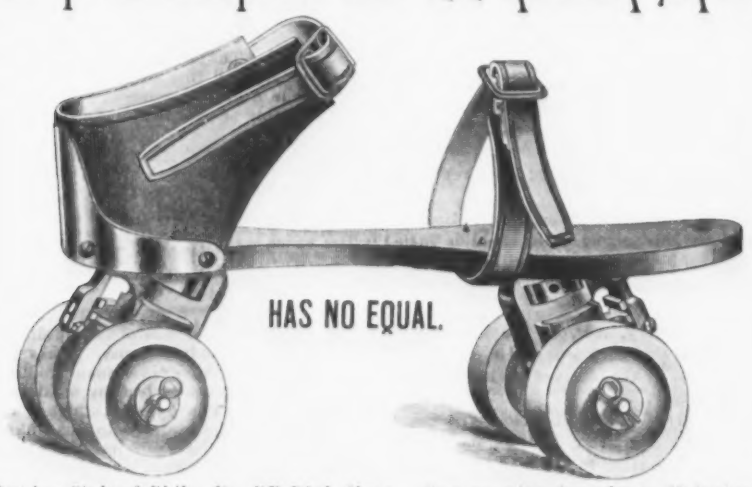
JACK SCREWS

OF EVERY DESCRIPTION,

Track Jacks, Carriage Makers' Vises,

SAD IRONS, COPYING PRESSES AND STANDS, &c.

The PHILADELPHIA NO. XX ROLLER SKATE

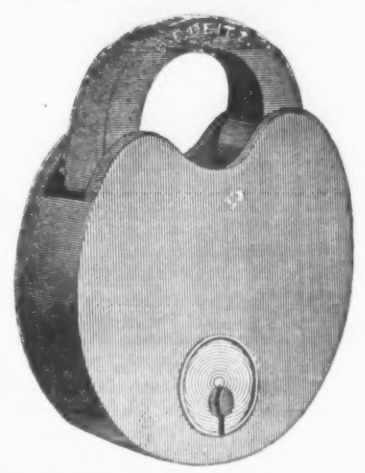


Showing Style of Phila. No. XX Rink Skate. Sizes running from 7½ to 12 inches.

With this Skate it is possible to describe the smallest circle ; do the fastest skating with greater ease than can be done upon any other skate upon the market.

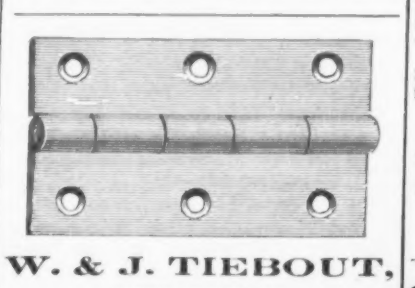
Lloyd & Supplee Hardware Co., Philadelphia.

A. E. DEITZ.



DURRIE & McCARTY, Agents,

97 Chambers & 81 Reade Sts., New York.



W. & J. TIEBOUT,

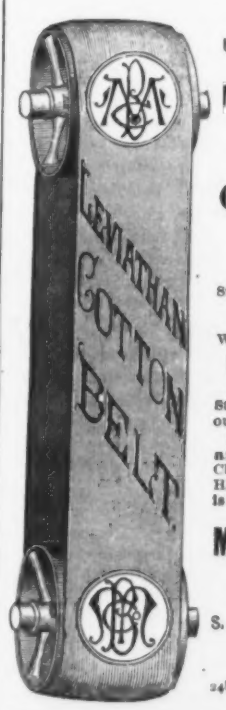
MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY

HARDWARE.

Nos. 16 & 18 Chambers Street.

NEW YORK



ALWAYS GIVES THE UTMOST SATISFACTION.

Main Belting Co.,

Manufacturers of

THE LEVIATHAN

COTTON BELTING.

Unsurpassed for Strength, Durability and Cheapness.

Made to any Length, Width and Strength.

Main Driving Belts.

Guaranteed to Run Straight, Even Throughout.

No Cross Joints, **Unaffected by Damp.** Clings well to the Pulley. Has no equal. In fact, is THE BELT.

MAIN BELTING COMPANY,

S. W. cor. Ninth and Reed Sts., Philadelphia.

Also

248 East Randolph St., CHICAGO.

THE STRONGEST GLUE IN THE WORLD.

AWARDED GOLD MEDAL LONDON, 1883

IT MENDS EVERYTHING

Wood, Leather, Paper, Ivory, Glass, Stone, Metals, &c.

Used by the largest manuf's for all kinds of fine work.

EVERYBODY WANTS IT.

ASK YOUR DEALER FOR

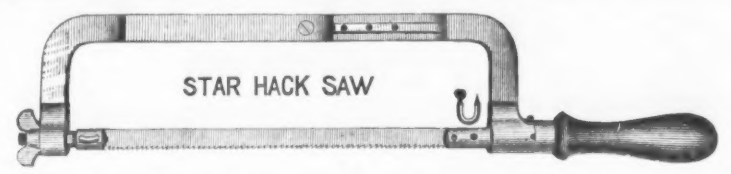
LE PAGE'S LIQUID GLUE.

If he does not keep it, send us his card with five 2-cent stamps, and we will send you a SAMPLE CAN **FREE** by mail.

RUSSIA CEMENT CO., Gloucester, Mass.

Sold in TIN CANS for Mechanics and Amateurs, and in BOTTLES for Family Use.

NEW YORK OFFICE, 96 Chambers St



These STAR HACK SAWS are the only thing in our list for which the demand is steadily and rapidly increasing in these dull times. Every dealer who orders them is sure to increase the number in his second order. They will be in universal demand, and every store in the land can sell them at a profit, besides giving great satisfaction to their customers.

There is no risk in handling them, as we will take back every one which is not wanted, whether bought of us or some other dealer. We guarantee them to do double as much cutting as any other kind in market.

Length of Blade,	6,	7,	8,	9,	10,	11,	12,	assorted, 6 to 9.
Price per dozen,	55,	60,	65,	70,	85,	95,	105,	65 cents.

STAR HACK ★ SAW FRAMES.

WITHOUT BLADES.

	Per doz.
No. 0 extension frame, to hold 10 11 and 12 inch, steel polished and nickeled	$12.00
No. 1 extension frame, to hold 6, 7, 8 and 9 inch, steel polished and nickeled	9.60
No. 2 solid frame, to hold 8 inch, steel polished and nickeled	8.40

As seen in the cut, these frames are all made adjustable, so as to face the blades in four different directions. They also have the patent staple-shaped pins to hold the blades in the frames, which are so arranged that they cannot fail out.

MILLERS FALLS CO.,

No. 74 CHAMBERS ST., NEW YORK.

CHAMPLAIN

Forged Horse Nails.

MANUFACTURED BY THE

NATIONAL HORSE NAIL CO.,

Vergennes, Vermont.

HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED.

WAREHOUSE

97 CHAMBERS AND 81 READE STREETS NEW YORK.

DURRIE & McCARTY, Sole Agents.

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THE SEIDEL & HASTINGS CO.,

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MANUFACTURERS OF

BEST CHARCOAL BOILER PLATES,

AND PLATE IRON GENERALLY.

ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our **C. H. No. 1 Boiler Plates,** which we manufacture expressly for the **Shells** of Steam Boilers and stamp **50,000 pounds T. S.** when desired. **One hundred and sixteen tests** of this iron, made during the last three years by the **U. S. Inspectors of Steam Vessels,** show an **average tensile strength** of **58,868 pounds** to the sectional square inch, and an **average reduction of area** of the fractured section of **30½ per centum.** Our prices are as low as the production of a good article will admit of.

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Manufacturers of

PATENTED HARDWARE SPECIALTIES AND NOVELTIES.

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New Spring Specialties—King Egg Beaters, awarded medal at American Institute, New York ; King Candle Lamp and Lantern, cheapest combination ever made.

STRONGEST ACME WRENCH *AND BEST.*

ALL STEEL CASE-HARDENED JAWS, WARRANTED. MANUFACTURED BY

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PURE TURKISH EMERY.

WALPOLE EMERY MILLS,

South Walpole, Mass.

THE WEEK.

The city of San Francisco is growing rapidly. From a real-estate summary presented for the past six months we find that the aggregate value of building improvements amounts to $4,456,559, against $3,198,670 for the same period in 1884, which shows a gain for this year's operations of $1,361,889.

The Panama Canal directors have asked the French Government to sanction a new issue of 500,000,000 francs worth of bonds. Premier Brisson opposes the demand on the ground that there is a deficit in the budget and the country cannot take other responsibilities. The company can issue with the Government's approval.

The Mexican *Financier* of July 12 says: "The banks continue to discount commercial paper with caution, and in commercial circles the disposition is to curtail operations till the crisis is past."

The municipal debts of the five principal cities of New York are: New York, $90,844,055; Brooklyn, $37,775,630; Buffalo, $7,971,267; Rochester, $5,284,000, and Albany, $3,103,000.

The State census of Nebraska, now nearly completed, will show the State to have a population of about 700,000. In 1880 it was 452,000. In the same period the city of Omaha has increased in population from 30,562 to 61,835.

Tobacco valued at $125,000 was destroyed by the burning of S. P. Lilienthal's warehouse, in this city, on Friday night; total loss, $165,000.

In the Central Labor Union, in this city, the tin and sheet-iron workers complain that the bricklayers are inserting hot-air pipes in buildings, and in every way have "gone back on them."

The new United States minister to Peru, Charles W. Buck, arrived at his destination simultaneously with the observance of the obsequies of his predecessor, Capt. S. L. Phelps, who died at Lima, June 24, of fever.

Vivid descriptions are given of the great oil basins in Wyoming Territory, about to be developed. The productive region comprises 30,000 acres, and in one part resembles a lake covered with a crust of earth only a few feet thick. The property is in the hands of promoters formerly connected with unsuccessful Western mining companies.

The iron steamer Chalmette, of Morgan's Line to New Orleans, has just made an exceptional trip, giving her a claim to being the fastest freight ship in the world. The distance of 1758 miles was run in 4 days, 20 hours and 25 minutes, which is 1 hour less than the famous trip of her consort, El Dorado. Her best day in the run was July 16, when she scored exactly 400 miles. The Chalmette is 321 feet long, 42 feet beam, and 28 feet deep, and within a few tons of 3000 gross.

Again the Erie Canal attracts attention. Shall it be enlarged, and, if so, shall we have a ship canal? The alliance of trunk-line railroads, by which the rivalries of competing lines will cease, gives the subject new importance, and ex-Governor Seymour, in referring to the conference to be held in Utica, August 19, to effect an organization for the improvement of the canals, urgently appeals for co-operation in this behalf.

Steel plates weighing in all 1000 tons were made in Pittsburgh by Park Bros. for the Chicago, for John Roach, and the notes given were promptly paid at maturity.

Captain Youngs, of Bridgeport, who is engaged in raising coal barges sunk in Long Island Sound, not long ago raised the schooner Fannie Crocker, loaded with copper, after she had lain submerged 32 years.

It is stated that $3,500,000 has already been pledged toward the building of the Storm King Bridge across the Hudson.

The receiver of the New Jersey Zinc Company, whose affairs are winding up, wishes to find three of the original stockholders, to whose credit stands a considerable amount in the shape of unclaimed dividends.

Owing to heavy port dues and the scarcity of cargo many sailing craft are deserting the coast of Peru. Some of the ports most frequented formerly by these coasters are closed.

A fire in Cardenas, Cuba, destroyed several sugar warehouses containing 16,000 hogsheads and 17,000 bags of sugar. Loss, about $600,000; insurance, $140,000.

Henderson Bros., of Glasgow, have built a large steel yacht for their own use and fitted her with triple-expansion compound engines.

Judge Donohue denied the motions to set aside the decree of foreclosure in the suit of the Farmers' Loan and Trust Company against the Bankers and Merchants' Telegraph Company, and to remove the trust company as trustee of the $10,000,000 mortgage.

If the Davis Island dam, on the Ohio, below Pittsburgh, which is about completed, proves a success, it will do much toward solving the problem of permanently improving the stage of water in that and Western rivers generally. This kind of dam is known in France as the Chaonine system, but in the construction of the Davis Island dam the engineers have made innovations. The cost of the dam will be about $1,000,000.

Lieut. E. D. F. Heald, of the United States coast steamer A. D. Bache, was recently furnished with a quantity of Alabama splint coal, which he was requested to compare with the Pittsburgh coal obtained at New Orleans. Lieutentant Heald writes as follows in regard to the test: "I have used both kinds of coal during the past months, and the Alabama coal has proved to be nearly as good as the Pittsburgh coal for steaming purposes. I find that the former giver a little more clinker than the latter, but this is more than compensated by the difference in price. I am so pleased with the result of the trial that I have returned to Mobile to fill my bunkers, instead of going to South Pass for the Pittsburgh coal."

Bids for the construction of two dikes in the Delaware River were opened in Philadelphia by the Government engineers. Those from S. R. Cumming, John A. Bouker, John F. Dawson and Frank Pigeon, all of New York, ranged from $45,000 to $81,464.

The Metal Exchange officially recognizes Southern irons by adding three new brands, the "Mary Pratt," "Citico" and "Warwick," which will be accepted as a good delivery contract. The first two mentioned are a Southern product.

Among the dismissals at the New York Custom-House is Joseph C. Biglin, assistant appraiser in the machinery and iron division.

The United States Attorney-General decides that an eight-year contract for mail locks and keys, made in 1880, holds good in law, the term being limited only by "administrative policy."

A shipload of tea, comprising 2000 tons, consigned by Frazer & Co., of Yokohama, to parties in New York, will be sent over the Northern Pacific Railroad at the unprecedentedly low rate of $1.75 per ton.

Germany vies with England in establishing steamship lines to the far East. Hamburg merchants, with characteristic enterprise, are building four large freight steamers, to provide for a departure to Hong Kong every 20 days. This movement was stimulated by rivalry with the North German Lloyds, of Bremen, who succeeded in obtaining a State subsidy for postal steamers.

The Japanese commissioner to the New Orleans exposition is inspecting the South Carolina phosphate mines, and proposes to establish direct trade with Japan in phosphate fertilizers.

The failure of the proposed Hudson's Bay route to the Northwest shows that the idea of grain shipments to Europe by river steamers to the Pacific is chimerical.

In the case of Jos. H. Goodsell, president of the National Associated Press, judgment was entered on Friday in the Superior Court, in this city, for $240,159 against the Western Union Telegraph Company, the principal sum being damages for breach of contract.

The plant which the E. & G. Brooke Iron Company are building alongside of their casthouse at Birdsboro is a plain simple tilting converter with horizontal tuyeres 7 inches above the bottom. One of our leading metallurgists, writing to us on the subject of this new plant, states that if it comes up to expectations, as he firmly believes it will, it is destined to prove highly important, because it is not hampered by a single patent.

As an indication of the drift toward steel as a substitute for iron, it may be stated that last week one of our steel mills had an inquiry for 5000 tons from a manufacturer who has until now used iron exclusively in producing a specialty. Negotiations remained pending for a while, because the buyer wanted the material in the form of billets, while the seller would find it more convenient to deliver ingots.

The Attorney-General of New Jersey sued injunctions restraining 200 corporations in that State from business on account of the non-payment of taxes under the new law, of which many of them were ignorant.

The Wiedling Motor Company, whose certificate of incorporation has been filed in the county clerk's office in this city, is to manufacture and lease or sell certain machinery or appliances operated by or connected with the use of compressed air for propelling cars or other vehicles and for other purposes. Its capital stock is $100,000, and its trustees are Daniel D Conover, Richard Kelly, John S. Foster, J. B. McGeorge, Daniel D. Wylie, William A. Butler and Hermann Wiedling.

Chicago papers represent that there are now stored in that city 15,000,000 bushels of wheat liable to suffer from heating. It is urged that room should be made for the new crop, and the elevator men are advised to offer a rebate on storage charges liberal enough to encourage shippers to take hold.

The Berlin Chamber of Commerce report for 1884 claims that the Berlin Bourse holds a paramount position in the Continental markets. The causes are described as partly political and partly economic, the main cause being the influence of the German Empire. Among the financial causes mentioned is the fact that the German States are free from debt, excepting the railway loans, and get 30,000,000 marks more of net income from the State Railways than they have to pay as interest on debt. The report declares in favor of the preservation of the single gold standard and against the agitation of the bimetallists.

A Boston committee is visiting the New York Water Works, with reference to a proposed high-service reservoir in Brookline.

A Russian commercial commission has been appointed to study trade movements and means of communication between trans-Caspian territory and Afghanistan and Persia.

St. Louis papers notice the fact that immediately after the strike in Pittsburgh a considerable number of ironworkers and their families moved out to the cheap lands in the West to cultivate the soil.

The Congo River country opened by Stanley is not a paradise, according to reports received by the Navy Department from Admiral English and other naval authorities. As a commercial depot it is condemned without stint. The reputed wealth of the Congo Valley is exaggerated. The country cannot even produce food upon which the white man can live. On all sides there is misery, sickness and death. Americans are not encouraged to go there.

The first Lord of the British Admiralty, in response to a deputation of the merchants and traders of London, who expressed their views respecting the necessity of strengthening the navy, said: "It will be our first duty to carefully classify all the armor-clads in the navy with a fixed determination to maintain in the first-class reserve only such armor-clads as are, in the opinion of our professional advisers, thoroughly efficient and sea-going ships. We are also anxious, so far as we can with the funds at present at our disposal, to increase the stock of our guns and to add to our torpedo boats torpedoes and other scientific instruments of modern warfare. If, as science tells us, it is to play a large part in the naval warfare of the future, it is satisfactory to know that England is the home of scientific research and of mechanical invention. We want to encourage the great steel and iron producing firms to a careful study of those matters in a view of the production of scientific instruments of destruction, so that if we should ever unfortunately be involved in war we may have the undivided benefit of the establishments which may be found to exist, or which may expand themselves in this country. Lastly, we have made up our minds that, whatever may be the shipbuilding programme we shall adopt, we shall do our very best to push on to completion as rapidly as possible the ships we may consider it necessary to lay down.

The Monongahela Water Works, in Pittsburgh, are to be transferred to the city in consideration of $100,000 per annum paid out of the gross receipts.

The Brooklyn and Long Island Cable Company broke ground on Saturday.

A railroad in San Domingo, from Samona Bay through the richest lands in the island, was conceived by American capitalists 20 years ago. At last the principal difficulty has been overcome. The leading man concerned in this enterprise says: "Forty miles of line are graded. Our plant all comes from America, to which the commerce of the country naturally belongs, the only thing that we bring from England being the steel rails. By spring we hope to have traffic opened as far as La Vega de la Concepcione, an inland town 65 miles up the valley. From there we shall rush the road to Moca, and thence to Santiago de los Caballeros, where the line will end."

The steamship companies forming the General Conference have advanced steerage rates across the Atlantic to $22.50 and $23, which is an increase of $3 out and $2.50 return.

San Francisco papers deprecate the threatened suspension of the American steamship line to Australia, which is likely to take place in November. A San Francisco telegram says: "That this steamship line has been of great benefit to the merchants and manufacturers of the United States is shown by the increase in our exports to the colonies since 1874. In that year the value of goods exported to Australasia amounted to $3,785,098. In 1884 the exports had risen to $9,225,459, showing a gain of $5,440,361, and an excess of exports over imports (exclusive of $3,664,344 in specie) of $4,848,934. This great gain in our exports of articles of domestic manufacture is largely due to the purchases of colonists who travel by the American route. As a rule, they are rich or at least prosperous men; they spend a few days here and other days in the Atlantic States, where they visit the manufactories, become acquainted with the manufacturers and merchants, and make many purchases which lead to other purchases on their return to the colonies. If the Transpacific line is withdrawn a large part of this valuable trade will be lost to the manufacturers and merchants of New England and New York, as the colonists will all travel by the direct line to England, and will not come near the United States. It is a mistake to assume that California profits more largely than the Eastern States by the visits of the colonists. They buy much more extensively at the East, and have their purchases shipped from New York and Boston by sailing ships to the colonies."

The Holyoke Envelope Company are pushing work on the Government envelope contract. The first orders from Washington called for 1,270,000. The company employ 280 hands, and are turning off 900,000 envelopes a day.

Ex-Secretary Windom has been elected president of the Tehuantepec Ship Railway Company.

George T. Hope, president of the Continental Fire Insurance Company, and formerly president of the Board of Fire Underwriters in New York, died Monday evening at his residence in Bay Ridge, aged 67 years.

Lake navigators at Chicago say that one-third of all the vessels afloat could be profitably spared from the trade. Fully $5,000,000 worth of vessel property is lying idle around the lakes, yet there are 25,000,000 bushels of grain in the elevators at Duluth, Milwaukee and Chicago.

Business in Newark on Monday was almost wholly suspended by the great parade of workingmen. It included the Trades Assembly and over 100 minor organizations interested in that body. Over 8000 men were in line, including delegations from New York, Brooklyn, Jersey City, Yonkers, Elizabeth, Patterson, Passaic, New Brunswick and Trenton. There were 15 bands in the procession. As the men filed past the City Hall the procession was viewed by Governor Abbett, Mayor Haynes, Mayor Grace, of New York; Mayor Hartford, of Orange; President Dodd, and the Newark Common Council. At the park speeches were made by Governor Abbett and others. The most marked event was the suspension of all festivities while resolutions of respect to the memory of General Grant were adopted.

The Secretary of the Navy has addressed a letter to Mr. George W. Quintard, one of the assignees of Mr. John Roach, proposing a consultation of counsel for Mr. Roach with the Secretary of the Navy and the Attorney-General, to agree upon a practical method of dealing with the transactions between Mr. Roach and the Government. Mr. Whitney in his letter says: "The very liberal treatment which the contractor has heretofore received has left the Government without sufficient margin of moneys reserved to enable it to protect itself in the present situation. The contract provided that 10 per cent. should be retained from the bills as they came due and held as security for the completion of the work. At the present time these reservations would have amounted to $210,710. They have been surrendered to the contractor under circumstances not important to consider now, with the exception of $26,670. It is of the utmost consequence to the Government, as it is to yourselves, that a just settlement of past transactions should be had and a new departure made."

The Committee of the French Chamber on the Chinese Treaty urges the French merchants to take care that foreign merchants do not get into their hands the openings which the treaty furnishes. The report observes that it is not enough to obtain preferential duties. Meta horically speaking, France shakes the tree and England gathers the harvest.

The ex-minister to Hayti, J. M. Langston, remarks that Hayti is a country which should receive the earnest attention of this Government. It is rich in agricultural, mining and commercial resources and might become a great factor in not only advancing the material welfare of Hayti, but also affording additional revenue to the United States. E gland is making a strong bid for the business of the island.

The State Department at Washington submits to the dry-goods trade in New York samples of cloth used in trade on the West Coast of Africa, that they may learn the character of the goods which most readily find a market in that part of the world. An inspection of these goods may teach American manufacturers to avoid the mistake, to which our consuls all over the world report that they are most prone, of exporting to half civilized and barbarous countries the kind of goods which Americans think the foreigners ought to want, instead of those which they really prefer, although of inferior quality and higher price.

The profits given to Mrs. Grant for the first edition of her husband's work will be from $150,000 to $200,000, and the publishers believe she will receive from it in all about $500,000.

Suits have been brought against several safe-makers in New York to enforce the ordinance which forbids the hoisting of safes outside of buildings. While there may be no alternative but to demand the penalties, the proceeding seems arbitrary, since it is impracticable to hoist safes inside of buildings.

In the timber belt of Western Washington Territory there are 20,000,000 acres covered with timber, most of which is included within the limits named—an area nearly equal to the compined areas of the States of Connecticut, Massachusetts, Vermont and New Hampshire. This timber belt will average 25,000 feet of lumber to the acre, or a total of 500,000,000,000 feet of lumber. Hence, the saw mills of Puget Sound, with their present capacity of 500,000,000 feet per year, would take 1000 years to cut it down. The fir trees frequently attain the hight of 250 feet, and planks of lumber are sometimes turned out of these mills 100 feet in length.

Firemen and sailors on Atlantic steamships at Liverpool are threatening to strike against a reduction in wages of 10 shillings per month.

The cotton manufacturers' convention in session at Augusta, Ga., had a membership representing a capital of $8,000,000. A resolution passed declares in favor of a 30 days' shut down this summer, each mill to choose its own time. The main work of the convention, however, was done in its consultations. Contrary to general expectation, it was discovered that but few mills had a surplus on hand, and that, while they had sold out at a slight loss, they had realized their money, and returning confidence was felt in view of the coming excellent crops.

Congressman Warner has nearly completed a draft of his new silver bill, which includes the scheme of issuing certificates on the deposit of silver bullion at its market price at the time of deposit, which shall stand as the declared value of the certificates while in the hands of the public.

Referring to the proposed Anglo-Mexican alliance, sometimes talked about, the Mexican *Financier* says: "It may be that English diplomacy would like to build up on the southern border of the United States a strong nation, not openly hostile to American influence on this continent, but yet quietly exerting a counteracting force to American supremacy. It might be a shrewd move on the international chessboard for England to ally herself with Mexico, to build up her ally's credit, and, pursuing a policy of Central American annexation, convert Mexico into a powerful State friendly to England when the question of the control of the Panama Canal arises. Perhaps the French canal in the Western Hemisphere will on completion pass under English domination, as has the Suez Canal in the Eastern Hemisphere. In the great game of diplomacy England may here discern a stake well worth playing for. Perhaps what has been said here may explain some otherwise puzzling events of the near future."

The London *News* says all prior claims to the honor of the fastest passage round the world have just been thoroughly set aside by the performance of the steamship Arawa, which performed the voyage in the steaming time of 73 days, 5 hours, 40 minutes.

Siege guns are now built of wire. A very tough steel wire is used, having a breaking strength of 100 tons to the square inch, which is wound over a steel tube as tape may be wound on a reel, being frequently fastened off to secure its cohesion, and so neatly put together as to look like solid metal. An experimental howitzer has been made upon this principle and passed a satisfactory proof at the Royal Arsenal of England. It has a caliber of 10 inches, but weighs only about 70 cwt. In its trial this howitzer threw a shell of 360 pounds with a charge of 28 pounds, and attained a velocity of 1000 feet per second. The trial weapon seems in no way impaired by the strain to which it has been subjected.

General Negley, of Pittsburgh, is endeavoring to organize a company in New York to acquire and operate iron-ore lands in Cuba, adjoining the property of the Juragua Company.

The Complexity of Modern Engines.

Prof. H. S. Hele Shaw, with the object of illustrating a point dwelt upon in a lecture on the evolution of machines before the Society of Arts, viz., the complexity of modern engines, quotes the following table of the number of parts in the engines and boilers of a first-class Atlantic steamer, which was furnished to him by the builder:

Table Showing the Number of Parts in the Engines and Boilers of a First-Class Atlantic Steamer.

Jam nuts	278
Split pins	400
Levers	37
Guard rings	108
Pins	1,144
Moving parts	100
Total number of pieces in engines	6,000
Auxiliary engines	23
Steam-pipes	271
Pumping-out arrangement	172
Valves	147
Gauges	9
Lubricators, impermeators	147
Bolts	7,868
Studs	3,000
Nuts	10,407
Rivets	61,888
Boiler tubes	2,250
Condenser tubes	4,456
Boiler stays	1,582
Furnace-bars	1,356
Furnaces	24

Perhaps one of the most significant items is that of the 23 auxiliary engines, each a separate self-regulating, self-contained motor, supplied simply to work separate portions which at first used to be worked by the main engines or by hand. Consider the 764 parts made up of jam nuts, split pins and guard rings, placed solely for extra security, not to say the 1144 pins, many of which are for this purpose; and, lastly, the enormous total of which appears to amount to 104,642 parts, each requiring separate construction, fitting and securing, and truly it will be said that progress does not take place in the direction of simplicity. But if the visitor is led to turn from the difficulty of even understanding this complex system to the thought of what a marvelous achievement the design of such a machine must be, perhaps what strikes him even more than its complexity is the perfect interdependence of the parts and the extraordinary ease with which [illegible]

Current Hardware Prices, July 29, 1885.

HARDWARE.

Anvils.
Eagle Anvils American ... ⅌ lb 10¢—dis 20 %
Wright's ... 9¾ @ 10¢
Armitage's Mouse Hole ... 9¢
Armitage Mouse Hole, Extra ... 11½¢
Trenton ... 9½¢
Wilkinson's ... 9½¢@10¢
J. & Riley Carr, Patent Solid ... 11@11½¢

Anvil Vise and Drill.
Millers Falls Co., $18.00 ... dis 20 %
Cheney Anvil and Vise ... dis 25 %

Augers and Bits.
First Quality ... dis 60&10 @ 70 %
Snell's ... dis 60@60&7½ %
Cook's, Douglass Mfg. Co ... dis 55 %
Cook's, New Haven Copper Co...dis 50&10@50&10&5 %
Ives' Circular Lip ... dis 60 %
Patent Solid Head ... dis 30 %
C. E. Jennings & Co., No. 5 ... dis 40&10 %
C. E. Jennings & Co., No. 30 ... dis 60&10 %
C. E. Jennings & Co., Auger Bits, in fancy boxes, ⅌ set, 32½ quarters, No 5, $5; No. 30, $3 ... dis 20 %
Lewis' Patent Single Twist ... dis 45 %
Russell Jennings' Augers and Bits ... dis 25 %
Imitation Jennings Bits (new list).dis 50&10@50&10&5 %
Car Bits, Snell Mfg. Co ... dis 40&10&10 %
Car Bits, New Haven Copper Co ... dis 50&10 %
L'Hommedieu Car Bits ... dis 15 %
Snell Mfg. Co.'s Jennings' Bits (new list) ... dis 50&5 %
Expansive Bits, Clark's small, $18; l'ge, $26..dis 33⅓@35 %
Expansive Bits, Ives' No. 4, per doz., $60.dis 35@35&5 %
Expansive Bits, Swan's ... dis 40 %
Expansive Bits, Ansonia ... dis 25 %
Expansive Bits, Steer's, No. 1, $26; No. 2, $22..dis 35 %
Hollow Augers, Ives' / Hollow Augers, French, Swift & Co / Hollow Augers, Douglass' } dis 25&10 %
Hollow Augers, Bonney's Adjust. ⅌ dz. $48..dis 40&10 %
Hollow Augers, Stearns' Adjust. ⅌ dz. $48—dis 20&10 %
Hollow Augers, Ives' Expansive, each $4.50.dis 45 @ 50 %
Hollow Augers, Univ'l Expan., each. $4.50 ... dis 20 %
Wood's ... dis 25 %
Gimlet Bits ... ⅌ gross $3.00 @ $3.25
Gimlet Bits, Diamond ... ⅌ doz. $1.10, dis 25&10 %
Gimlet Bits, "Bee" ... dis 25 %
Double Cut Gimlet Bits, Shepardson's ... dis 45 %
Double Cut Gimlet Bits, Ct. Valley Mfg. Co..dis 30&10 %
Double Cut Gimlet Bits, Hartwell's, ⅌ gro, $6.50.dis 10 %
Double Cut Gimlet Bits, Douglass' ... dis 40 %
Double Cut Gimlet Bits, Ives' ... dis 50&10 %
Holtz Bit Stock Drills ... dis 25&10 %
L'Hommedieu's Ship Augers ... dis 15 @ 20 %
Watrous's Ship Augers ... dis 15 @ 20 %
Snell's Ship Augers ... dis 15 @ 20 %
Snell's Ship Auger Pattern Car Bits ... dis 15 @ 20 %

Awl Hafts.
Sewing, Brass Ferrule ... $3.50 ⅌ gross—dis 40&10 %
Patent Sewing, Short ... $1.00 ⅌ doz—dis 40&10 %
Patent Sewing, Long ... $1.20 ⅌ doz.—net
Patent Peg, Plain Top...$10.00 ⅌ gross—dis 40&10&5 %
Patent Peg, Leather Top.$12.00 ⅌ gross—dis 40&10&5 %

Awls, Brad Sets, &c.
Awls, Sewing, Common ... ⅌ gross $1.70—dis 35 %
Awls, Shouldered Peg ... ⅌ gross $2.45—dis 40 %
Awls, Patent Peg ... ⅌ gross 63¢—dis 40 %
Awls, Shouldered Brad ... $2.70 ⅌ gross—dis 35 %
Awls, Handled Brad ... $7.50 ⅌ gross—dis 45 %
Awls, Handled Scratch ... $7.50 ⅌ gross—dis 35&10 %
Awls, Socket Scratch ... $1.50 ⅌ doz—dis 25 @ 30 %
Aiken's Sets, Awls & Tools... ⅌ doz. $10.00—dis 50&10 %
Millers Falls Adj. Tool Handles ... ⅌ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 1 ... ⅌ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 2 ... ⅌ doz $18—dis 25 %
Brad Sets, No. 42, $10.50; No. 43, $12.50..dis 70&10&5 %
Brad Sets, Stanley's Excelsior, No. 1, $7.50. / Brad Sets, Stanley's Excelsior, No. 2, $4.00. / Brad Sets, Stanley's Excelsior, No. 3, $5.50. } dis 25&10 %

Axes.—Best grades, according to brand ... ⅌ doz $6.25 @ $7
Good Seconds ... $5.50 @ $6

Axle Grease.
Frazer's, in bulk ... Keg ⅌ lb, 5¢; Pail, ⅌ lb, 6¢ net
Frazer's, in boxes ... ⅌ gross $10.00 net
Axles.—Common ... ⅌ lb, 3¼@3¾¢
Fine Axles, 1¼ in. and under ... dis 60&5 @ 60&10 %
Fine Axles, over 1¼ in ... 4¾ @ 5¢ ⅌ lb

Bag Holders.
Sprengle's Pat., ⅌ doz $18 ... dis 60 %

Balances.
Spring Balances ... dis 40&10 %
Common 24 lb ... ⅌ doz., $1.50—dis 40&10 @ 50 %

Bells.
Hand, Light Brass ... dis 75&10 @ 80 %
Hand, Extra Heavy ... dis 65 @ 65&10 %
Hand, White Metal ... dis 70 %
Hand, Silver Chime ... dis 25&10&5 %
Hand Globe (Cone's Patent) ... dis 25&10 %
Gong, Abbe's ... dis 25&10 %
Gong, Yankee ... dis 40&10 %
Gong, Barton's ... dis 40&10 %
Crank, Taylor's ... dis 25&10 %
Crank, Brooks' ... dis 50&10&2 %
Crank, Cone's ... dis 10 %
Crank, Connel's ... dis 20&10 %
Lever, Sargent's ... dis 60&10 %
Lever, Taylor's Bronzed or Plated ... net
Lever, Taylor's Japanned ... dis 25&10 %
Lever, R. E. M. Co.'s ... dis 50&10&2 %
Pull, Brook's ... dis 50&10&2 %
Pull, Western ... dis 25&10 %
Call ... dis 40@40&5 %
Cow, Common Wrought ... dis 60&10 @ 60&10&5 %
Cow, Western ... dis 20&10 %
Cow, Western, Sargent's list ... dis 70&10 %
Cow, Kentucky "Star" ... dis 20&10 %
Cow, Kentucky, Sargent's list ... dis 70&10 %
Cow, Dodge, Genuine Kentucky, new list ... dis 70 %

Nos.	0	1	1½	2	3	4	5	6	7	Hog
	$12.00	10.00	9.00	8.00	6 00	5.00	4.00	3.00	2.50	5.00

Cow, Texas Star ... dis 50@50&5 %
Farm Bells ... ⅌ lb, 3¼¢.
Steel Alloy Church and School Bells ... dis 40 %

Bellows.
Blacksmiths' ... dis 50&10@50&10&5 %
Molders' ... dis 50 %
Hand Bellows ... dis 50 %

Belting, Rubber.
Standard ... dis 70&5 %
Extra ... dis 60&5@60&10&5 %
N. Y. Belting & Packing Co., Standard ... dis 50&10 %
N. Y. Belting & Packing Co., Extra Standard..dis 50 %
Cleveland Rubber Co., Extra Standard ... dis 60&10 %

Bench Stops.—Hotchkiss's ... ⅌ doz $5.00—dis 10 %
Weston's, per doz No. 1, $10; No. 2, $9— dis 25&10 @ 25&10&5 %
McGill's ... ⅌ doz $3—dis 10 %
Morrill's ... ⅌ doz $7.50—dis 40&5@40&10 %

Bit Holders.
Extension, Barber's ... ⅌ doz $15.00—dis 40&5 %
Extension, Ives'..⅌ doz $20.00—dis 40&10 @ 40&10&5 %
Diagonal ... ⅌ doz $24.00—dis 40 %
Angular ... ⅌ doz $24.00—dis 40&5 %

Blind Adjusters.
Domestic ... ⅌ per doz $3.00—dis 30 %
Excelsior ... ⅌ doz $10.00—dis 50&10&2 %

Blind Fasteners.
Mackrell's ... ⅌ doz pairs, $1.00—dis 20&10 %
Van Sand's Screw Pattern ... $15 ⅌ gro.—dis 50&10 %
Van Sand's Old Pattern ... $15 ⅌ gro.—dis 50&10 %
Washburn's Old Pattern ... $9 ⅌ gro. net
Merriman's ... new list, net
Salisbury & Austin No. 2008 ... $9 ⅌ gro. net
Security Gravity ... $9 ⅌ gro. net

Blind Staples.
Barbed, ½ in. and larger ... ⅌ lb 8 @ 8½¢ net
Barbed, ⅜ in ... ⅌ lb 9 @ 9½¢ net

Blocks.
Tackle Blocks, &c. list April 17, 1885 ... dis 20 %
Reed Mfg. Co. Self-Lubricating ... dis 50 %

Bolts
Cast Iron Barrel, Square, &c ... dis 70 @ 70&5 %
Cast Iron Shutter Bolts ... dis 70 @ 70&5 %
Cast Iron Chain (Sargent's list) ... dis 70 @ 70&5 %
Ives' Patent Door Bolts ... dis 55&10 %
Wrought Barrel ... dis 70 @ 70&5 %
Wrought Square ... dis 70 @ 70&5 %
Wr't Shutter, all Iron, Stanley's list..dis 50&10&10&5 %
Wr't Shutter, Brass Knob, Stanley's..dis 25&10&10&5 %
Wrought Shutter, Sargent's list ... dis 60&10&5 %
Wrought Sunk Flush, Sargent's list ... dis 60&10&5 %
Wrought Sunk Flush, Stanley's list ... dis 40&10&5 %
Wrought B. K. Flush, Com'n Stanley's list ... dis 55 %
Tire, Common, list Feb. 28, 1883 ... dis 70&5 @ 70&10 %
Carriage, Com., list June 10, '84 ... dis 80 @ 80&10 %
Carriage, Genuine Eagle, list Oct. 7, '84.dis 75&5@75&10 %
Carriage, Phila. pattern, list Oct. 7, '84.dis 75&10@80 %
R. B. & W., Carriage, old list ... dis 70&5 %
Tire, Am. S. Co., Norway, Ph'l., list Oct. 16, '84.dis 82½ %
Tire, Am. S. Co., Eagle, Phil., list Oct. 16, '84.dis 82½&10 %
Tire, Am. S. Co., Bay State, list Feb. 28, '83.dis 70&10 %
Tire, R. B. & W., Philadel. list Oct. 16, 1884..dis 80&5 %
Stove ... dis 70 %
Plow ... dis 65 %
Plow, R. B. & W ... dis 50&5 %
Machine ... dis 80 %
Bolt Ends ... dis 80 %
Borax ... 9¢ @ 9½¢ ⅌ lb net

Boring Machines.

Without Augers.	Upright.	Angular.	
Douglas	$5.50	$6.75	dis 50 %
Snell's, Rice's Patent	5.50	6.75	dis 40&10&10 %
Jennings	5.50	6.75	dis 45@45&10 %
Other Machines	2.50	3.00	net
Phillips' Pat., with Augers	7.00	7.50	net

Bow Pins
Humason, Beckley & Co.'s, Nos 1 and 2— dis 60&10 @ 60&10&5 %
Humason, Beckley & Co.'s other Nos..dis 70 @ 70&10 %
Sargent & Co.'s ... $17 and $18, dis 60&10 %
Peck, Stow & W. Co ... dis 50&10 @ 50&10&5 %

Braces.
Q. S. Backus ... dis 50&10 @ 50&10&10 %
Barber's, Nos. 10 to 16 ... dis 50 %
Barber's, Nos. 30 to 33 ... dis 40&10 %
Barber's, Nos. 40 to 63 ... dis 40&10&5@50 %
Spofford's ... dis 50&10 @ 50&10&10 %
Ives' Patent Braces ... dis 60@60&5 %
Common Ball, American ... dis 55&10 %
Bartholomew's, Nos. 25, 27, 30 ... dis 50&5 @ 50&10&5 %
Bartholomew's, Nos. 117, 118, 119 ... dis 65 %
Amidon's Barker's Imp'd ... dis 60@60&10&5 %
Amidon's Corner Brace ... dis 40 @ 40&5 %
Universal ... 8 in., $1.90; 10 in., $2.10
Buffalo Ball ... 8 in., $1.50 @ $1.55

Brackets.
Shelf, plain, Sargent's list ... dis 60&10 %
Shelf, fancy, Sargent's list ... dis 60&10&10 %
Reading, plain ... dis 60&10&5 %
Reading, Rosette ... dis 66⅔&10 %

Bright Wire Goods.
List of June 25, 1883....dis 70&10&10 @ 70&10&10&10 %

Broilers.—Henis' Self-Basting.

Inch	9	10	9 x 11
Per doz	$4.50	5.50	6.50

Bull Rings.
Union Nut Co ... dis 55 %
Sargent's ... dis 66⅔&10 %
Hotchkiss' low list ... dis 30 %
Humason, Beckley & Co.'s ... dis 70&10 %
Peck, Stow & W. Co.'s ... dis 50&10 %
Ellrich Hdw. Co., White Metal, low list ... dis 50 %

Butts.
Wrought Brass, manufacturers' price ... dis 70 %
Wrought Brass, jobbers' ... dis 70 @ 75 %
Cast Brass, Tiebout's ... dis 40 %
Cast Brass, Corbin's F. Joint.dis 33⅓&10@33⅓&10&10 %
Cast Brass, Loose Joint ... dis 33⅓&10@33⅓&10&10 %
Fast Joint, Narrow ... dis 60&10 %
Fast Joint, Broad ... dis 60&10 %
Loose Joint / Loose Joint, Japanned / Loose Joint, Jap. with Acorns / Parliament Butts / Mayer's Hinges / Loose Pin, Acorns / Loose Pin, Acorns, Japanned / Loose Pin, Acorns, Jap, Pltd. Tips } dis 70&10 @ 70&10&5 %

WROUGHT IRON.
Fast Joint Narrow ... dis 60&10&10 %
Fast Joint, Lt. Narrow ... dis 60&10&10 %
Fast Joint, Broad ... dis 60&10&10 %
Loose Joint, Broad ... dis 60&10&10&5 %
Table Butts, Back Flaps, &c ... dis 60&10&10 %
Inside Blind, Regular ... dis 60&10&10 %
Inside Blind, Light ... dis 60&10&10 %
Loose Pin, Wrt ... dis 60&10&10&5 %
Loose Pin, Light ... dis 60&10&10 %
Bronzed Wrought Butts ... dis 45&5@45&10 %
Spring Hinges:
Geer's Spring and Blank Butts ... dis 33⅓ %
Union Spring Hinge Co.'s ... dis 30 %
American Spring Hinge Co.'s ... dis 30 %
Gem Spring Hinges ... dis 30 %
Barker's Double Acting ... dis 20&10 %
Union Mfg. Co ... dis 25 %
Bommer's ... dis 25 %
Buckman's ... dis 25 %
Empire ... dis 60&10 %
Acme ... dis 70 %
Climax ... dis 50&10 %
Chicago ... dis 30 @ 30&10 %
Blind Butts, Parker ... dis 75&2 %
Blind Butts, Palmer ... dis 50&5&10 %
Blind Butts, Seymour ... dis 70&2 %
Blind Butts, Lull & Porter ... dis 80&10 %
Blind Butts, Nicholson ... dis 45&10 %
Blind Butts, Huffer ... dis 50 %
Blind Butts, Clark's, Nos. 1, 3, 5 ... dis 80 %
Blind Butts, Manhattan Hardware Co ... dis
Blind Butts, Sargent's, Nos. 1, 3 ... dis 75&10 %
Blind Butts, Sargent's, No. 12 ... dis 75&10&10 %
Blind Butts, Reading's Gravity ... dis 75&10 %
Blind Butts, Shepard's "Noiseless," Nos. 50, 60, 65, 45 and 55 ... dis 75&10&5 @ 80 %
Blind Butts, Shepard's Champion Gravity, No. 75 ... dis 80&10 %
Blind Butts, Shepard's "Gravity," Nos. 1, 3 and 5 ... dis 80 @ 80&5 %
North's Automatic Blind Fixtures, No. 2, for Wood, $9; No. 3, for Brick, $10.50.
Shepard's "O. S." and "Acme" Lull & Porter ... dis 75&10&5 %
Shepard's "Queen City" Reversible ... dis 75&10&5 %
Clark's Improved Shutter Hinge, Nos. 0, 1, 1½, 2, 2½, 3 ... dis 70 %

Butcher's Cleavers.
Humason & Beckley Mfg. Co ... dis 30&5 @ 30&10 %
Bradley's ... dis 25 @ 30 %
Beatty's ... dis 33⅓&5 %

1	2	3	4	5	6	7	8
$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

New Haven Edge Tool Co.'s ... dis 40 %
Albertson Mfg. Co ... dis 33⅓ @ 33⅓&5 %

Calipers ... See Compasses

Can Openers.
Messenger's Comet ... ⅌ doz $3.00, dis 25 %
American ... ⅌ gross $3.00
Duplex ... ⅌ doz 25¢, dis 15 @ 20 %
Lyman's ... ⅌ doz $3.75, dis 20 %
No. 4, French ... ⅌ doz $2.25, dis 55 @ 60 %
No. 5, Iron handle ... ⅌ gross $6.00, dis 45 @ 50 %
Eureka ... ⅌ doz $2.50, dis 10 %
Sardine Scissors ... ⅌ doz $7.00, dis 55 %
Star ... ⅌ doz $5.00, dis 25&5 %
Sprague, No. 1, $2; No. 2, $2.25; No. 3, $2.50.dis 50&10 %
World's Best, ⅌ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00 ... dis 50&10 %
Universal ... ⅌ doz $3.00, dis 35&5 %
Domestic ... ⅌ doz $2.50, dis 45 %
Champion ... ⅌ doz $2.00, dis 50 %

Caps—Percussion, ⅌ 1000.
Hicks & Goldmark's
F. L. Waterproof, 1-10's ... 50¢ / E. B. Trimmed Edge, 1-10's ... 65¢ / E. B. Ground Edge, Central Fire, 1-10's.70¢ / Double Waterproof, 1-10's ... $1.40 } dis 25 @ 25&5 %
Musket Waterproof, 1-10's ... 50¢
G. D ... 28¢
S. B ... 30¢
S. B. Genuine Imported ... 45¢
Eley's E. B ... 56¢
Eley's D Waterproof, Central Fire ... $1.60
U. M. C., F. C. Trimmed ... 50¢ / U. M. C., F. L. Ground ... 65¢ / U. M. C., Cen. Fire Ground ... 70¢ / U. M. C., Double Waterproof ... $1.40 / Double Waterproof, in 1-10's ... 1.40 } dis 25 @ 25&5 %

Cartridges.
Rim, list Jan. 1, '84 ... dis 60&10&2 @ — %
Central Fire, list Jan. 1, '84 ... dis 40&10&2 @ — %

Cards.
Horse and Curry ... dis 10 @ 10&10 %
Cotton ... New list, Aug., 1883, dis 10 %
Wool ... " " " dis 10 %

Carpet Stretchers.
Cast Steel, Polished ... ⅌ doz $5.00, dis 30 %
Cast Iron, Steel Points ... ⅌ doz $1.00, dis 15 %
Socket ... ⅌ doz $2.50, dis 25 %
Bullard's ... dis 25 %

Carpet Sweepers.
Bissell No. 5 ... ⅌ doz $17.00
Bissell No. 7 New Drop Pan ... ⅌ doz $19.00
Bissell No. 12 Hall Sweeper ... ⅌ doz $42.00
Mystic ... ⅌ doz $17.00
Cottage ... ⅌ doz $15.00
Garland ... ⅌ doz $19.00
Queen ... ⅌ doz $16.00
Queen, with band ... ⅌ doz $18.00
King ... ⅌ doz $30.00

Casters.
Bed / Plate / Shallow Socket } dis 60&5@60&10 %
Deep Socket ... dis 45 @ 50 %
Yale Casters, reduced list May, 1884 ... dis 25@25&10 %
Martin's Patent (Phœnix) ... dis 45&10 @ 50 %
Payson's Anti friction ... dis 60 %
"Giant" Truck Casters ... dis 10 %
Stationary Truck Casters ... dis 45&10

Cattle Leaders.
Humason, Beckley & Co.'s ... dis 75 %
Sargent's ... dis 66⅔&10 %
Hotchkiss ... dis 30 %
Peck, Stow & W. Co ... dis 50&10 %

Chain.
Trace, 6½-10-2 Exact ... ⅌ pair 79¢ / Trace, 6½-10-3 Exact ... ⅌ pair 70¢ / Trace, 7-10-2 Exact ... ⅌ pair 86¢ } dis 50&10 @ 60 %
Log, Fifth, Stretcher, and other fancy Chains, list Nov. 1, 1884 ... dis 50&10 @ 60 %
German Halter Chain, list of June, 1884 ... dis 55&5 %
German Coil, list of June, 1881 ... dis 55&5 %

American Coil	3-16	¼	5-16	⅜	7-16	½
	$0.8	.06	.05¼	.04¾	.04½	.04¼

Covert Halter, Hitching and Breast ... dis 50&2 %
Covert Traces ... dis 35&2 %
Meneely's Breast, Halter and Hitching ... dis 50&10 %
Meneely's Pat. Sleeve-Snap Breast ... dis 50&10
Oneida Halter Chain (old list) ... dis 45 %
Galvanized Pump Chain ... ⅌ lb 5¾¢ @ 6¼¢
Jack Chain, Iron ... dis 70&10 @ 75 %
Jack Chain, Brass ... dis 70 @ 70&10 %

Chalk.
White ... ⅌ gro 55¢
Red ... ⅌ gro 65¢
Blue ... ⅌ gro 90¢
White Crayons ... ⅌ gro 12¢ @ 13¢

Chalk Lines.—See Lines.

Cherry Seeders ... ⅌ doz $3.50

Chisels.
Socket Framing and Firmer ... dis 80 %
Douglass & Witherby ... dis 75 @ 75&5 %
Socket Framing and Firmer, Buck Bros ... dis 30 %
Socket Framing and Firmer, Merrill ... dis 60&10&10 %
Socket Firmer, Framing, &c., L. & I. J. White..dis 25&5 %
Socket Framing Firmer, &c., Crossman ... dis 65&5 %
Tanged Firmers ... dis 50 @ 50&5 %
Tanged Firmers, Butcher's ... $4.75 @ $5.00
Tanged Firmers, Spear & Jackson's ... $5.00 to £
Tanged Firmers, Buck Bros ... dis 30 %

Clamps.
Iron, Providence Tool Co.'s Wrought Iron ... dis 25 %
Iron, Adjustable, Gray's ... dis 20 %
Iron, Adjustable, Lambert's ... dis 20 %
Iron, Adjustable, Snow's ... dis 40&5 %
Iron, Adjustable, Hammer's ... dis 15 %
Iron, Adjustable, Stearns' ... dis 20&10 %
Iron, Cabinet, Sargent's ... dis 70&10 %
Iron, Carriage Makers', Sargent's ... dis 65&10&10 %
Iron, Eberhard Mfg. Co ... dis 40&5 @ 40&10 %
Iron, Warner's ... dis 40&10 %
Saw Clamps ... See Vises

Coal Vases.
Buffalo Palace, S. S. & Co ... dis 33⅓&10 %
Buffalo Common, S. S. & Co ... dis 33⅓&10 %

Cockeyes ... dis 50 %

Cocks, Brass.
Racking ... dis 65&5 %
Globe ... dis 65&5 %
Plain Bibbs ... dis 60&5 %
Ale and Beer ... dis 60&5 %

Coffee Mills.
Board and Box ... dis 40&10&2 @ 45&10&2 %
Selsor's Patent ... $9.50, $10.50, dis 25 %
American, Enterprise Mfg. Co ... dis 20&10 %
The "Swift," Lane Bros ... dis 20&10 %
Webb's Patent ... dis 45 %

Compasses, Dividers, &c.
Compasses ... dis 60&10&10 %
Calipers ... dis 60&10&10 %
Dividers ... dis 60&10&10 %
Bemis & Call Co.'s Dividers ... dis 60&5 %
Bemis & Call Co.'s Compasses & Calipers ... dis 50&5 %
Bemis & Call Co.'s Wing & Inside or Outside.dis 50&5 %
Bemis & Call Co.'s Double ... dis 60 %
Bemis & Call Co.'s (Call's Patent Inside) ... dis 30 %
Excelsior ... dis 50 %
Cook's Extension ... dis 25 %
J. Stevens & Co.'s Calipers and Dividers ... dis 25&10 %

Coopers' Tools.
Bradley's ... dis 20 %
Barton's ... dis 25 %
L. & I. J. White ... dis 20&5 %
Albertson Mfg. Co ... dis 25 %
John Beatty & Co ... dis 33⅓ %

Corkscrews.
Humason & Beckley Mfg. Co ... dis 40 %
Clough's Patent ... dis 33⅓ @ 33⅓&5 %
Howe Pros. & Hulbert ... dis 35 %

Corn Knives and Cutters.
Bradley's ... dis 10 %
Wadsworth's ... dis 25 %

Cradles.
Grain ... dis 40&5&2 %

Crow Bars.
Cast Steel ... ⅌ lb 3¼@3½¢
Iron, Steel Points ... ⅌ lb 2¾@3¢

Curry Combs.
Fitch's ... dis 50&10 %
Rubber ... ⅌ doz $10.00, dis 25 @ 30 %

Curtain Pins.
Silvered Glass ... net
White Enamel ... net

Cutlery.
Beaver Falls and Booth's ... dis 33⅓ %
Goodel Co., Table ... dis 40 %
Wostenholme ... $7.75 @ $8.00 to £

Dividers ... See Compasses

Dog Collars.
Embossed Gilt, Pope & Stevens' list ... dis 30&10 %
Leather, Pope & Stevens' list ... dis 40 %
Brass, Pope & Stevens' list ... dis 40 %

Door Springs.
Torrey's Rod, regular size ... ⅌ doz $1.45 @ $1.50
Gray's ... ⅌ gro, $20.00, dis 20 %
Bee Rod ... ⅌ gro, $20.00, dis 20 %
Warner's No. 1, ⅌ doz, $2.50; No. 2, $3.30 ... dis 40&10 %
Gem (Coil):
No. 1, Large Japanned ... ⅌ doz $4.00 / No. 2, Medium, Japanned ... ⅌ doz 2.75 / No. 3, Small, Japanned ... ⅌ doz 2.00 } dis 50&10 %
Star (Coil)—For Cop'd, Nickel-Plated, &c., see list.
No. 4, ("Shoo Fly") Screen Door size, ⅌ doz $1.50 / No. 5, Screen Door size ... ⅌ doz 2.00 / No. 6, Medium ... ⅌ doz 2.75 / No. 7, Large ... ⅌ doz 4.00 } dis 60 %
Victor (Coil) ... dis 50&10&10 %
Champion (Coil) ... dis 50&10 @ 50&10&10 %
Philadelphia ... 5 in., $5.00; 8 in., $7.75, dis 50 %
Cowell's ... No. 1, ⅌ doz $18.00; No. 2, $15.00, dis 50 %
Rubber, complete ... ⅌ doz $2.25, dis 20&10 %
Hercules ... dis 50 %
Shaw Door Check and Spring ... dis 25 @ 30 @ 35 %
Elliott's Door Check and Spring ... dis 25 %

Drawing Knives ... dis 75&10@75&10&5 %
Douglass & Witherby ... dis 75 @ 75&5 %
Merrill ... dis 60&10&10 %
Watrous ... dis 15&10 %
L. & I. J. White ... dis 20&5 %
Bradley's ... dis 35 %
Adjustable Handle ... dis 20@20&5 %

Drills and Drill Stocks.
Blacksmiths' ... each, $1.60 @ $1.70
Blacksmiths' Self-Feeding ... each, $7.50, dis 20 %
Breast, P. S. & W ... dis 40&10 %
Breast, Wilson's ... dis 30&5 %
Breast, Millers Falls ... each, $3.00 dis 25 %
Breast, Bartholomew's ... each, $2.50, dis 25&10 @ 40 %
Ratchet, Merrill's ... dis 20 %
Ratchet, Ingersoll's ... dis 25 %
Ratchet, Whitney's ... dis 20&10 %
Ratchet, Weston's ... dis 20 %
Ratchet, Moore's Triple Action ... dis 25@30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00 ... dis 20&10 %
Wilson's Drill Stocks ... dis 10 %
Automatic Boring Tools ... each, $1.75 @ $1.85

Drill Chucks.
Morse's Beach Patent ... each, $8.00, dis 20 %
Morse's Adjustable ... each, $7.00, dis 20 @ 20&5 %
Danbury ... each, $8.00, dis 30 @ 30&5 %

Dripping Pans.
Buffalo, S. S. & Co ... ⅌ lb, 5½¢

Egg Beaters.
Dover ... ⅌ doz $2.50
National ... ⅌ doz $4.50, dis 33⅓ %
Family (T. & S. Mfg. Co.) ... ⅌ gro, $17.00@$18.00
Standard ... ⅌ gro, $12.00
Kingston ... ⅌ gro, $9.00
Acme ... ⅌ gro, $8.00
Triumph (T. & S. Mfg. Co.) ... ⅌ gro, $10.50@$11.50
Advance No. 1 ... ⅌ gro $10.50
Advance, No. 2 ... ⅌ gro $10.00

Emery.
Regular numbers ... ⅌ lb 7¢
Flour and F. F ... ⅌ lb 6½¢
For Emery Paper and Cloth, see Sand Paper.

Enameled and Tinned Ware.—See Hollow-Ware.

Escutcheon Pins.
Iron ... dis 50&10 %
Brass ... dis 60 %

Escutcheons.
Door Lock ... Same discounts as Door Locks
Brass Thread ... dis 60 @ 60&10 %
Wood ... dis 25 %

Faucets.
Fenn's ... dis 40 %
Bohren's Patent Rubber Ball ... dis 25 %
Fenn's Cork Stops ... dis 33⅓ %
Star ... dis 60 @ 60&5 %
Frary's Patent Petroleum ... dis 33⅓& 10 %
West's Patent Key ... dis 50 %
Anchor Lock ... dis 45 %
Metallic Key, Leather Lined ... dis 55&10 @ 60&10 %
Cork Lined ... dis 70 @ 70&10 %
J. Sommer's Best Block Tin Key ... dis 40 %
J. Sommer's Cork Lined, 1st quality ... dis 50 %
J. Sommer's Diamond Lock ... dis 40 %
Self-Measuring, Enterprise ... ⅌ doz $36.00—dis 20&10 %
Self-Measuring, Lane's ... ⅌ doz $36.00—dis 25&10 %
Self-Measuring, Victor ... ⅌ doz $36.00—dis 25&10 %

Felloe Plates ... ⅌ lb 6½¢ net

Files.
J. & Riley Carr ... New list, April 1, 1883, dis 15 %
J. & Riley Carr Horse Rasps ... dis 10 %
Moss & Gamble ... New list, dis 15 %
Butcher ... New list, dis 20 %
Best Files of domestic make, according to brand ... dis 60 @ 60&10&5 %
Lower Grade domestic Files ... dis 60&10&10 @ — %
New Am. File Co., Pat. Tapers ... dis 50 %
J. B. Smith Co. Screw Tang Files ... dis 60 %
J. B. Smith Co. Horse and Wood Rasps ... dis 50&10 %
Stubs ... dis 25 @ 30 %

Fluting Machines.
Knox, 4½-inch Rolls ... $3.25 each / Knox, 6-inch Rolls ... $3.60 each } dis 35 %
Eagle, 3½-inch Roll ... $2.15, dis 35 %
Eagle, 5½-inch Roll ... 2.85, dis 35 %
Crown, 4½ in., $3.50; 6-in, $4.00; 8-in., $6.50 each, dis 35 %
Crown Jewel ... 6-in., $3.50 each, dis 35 %
American, 5-in., $3; 6-in., $3.40; 7-in., $4.50 each, dis 35 %
Domestic Fluter ... $1.50 each, net
Geneva Hand Fluter, White Metal ... ⅌ doz $12, dis 25 %
Crown Hand Fluter, Nos. 1, $15; 2, $12.50; 3, $10.00, ⅌ doz ... dis 30 %
Shepard Hand Fluter, No. 85 ... ⅌ doz $15.30, dis 40 %
Shepard Hand Fluter, No. 110 ... ⅌ doz $11, dis 40 %
Shepard Hand Fluter, No. 95 ... ⅌ doz $8, dis 40 %
Clark's Hand Fluter ... ⅌ doz $15.00, dis 33⅓ %
Combined Fluter and Sad Iron ... ⅌ doz $15.00, dis 30 %
Buffalo ... ⅌ doz $10.00 dis 10 %

Fluting Scissors ... dis 45 %

Fly Traps.
Paragon ... ⅌ doz $2.00

Forks.
Hay, Manure and Spading, first quality ... dis 60&10 %
Plated, see Spoons.

Freezers.—See Ice-Cream Freezers.

Fruit and Jelly Presses.
Enterprise Mfg. Co ... dis 20&10 @ 30 %

Fry Pans.
Central Stamping Co.'s list ... dis 33⅓&2 %

No	0	1	2	3	4	5	6	7	8
⅌ doz	$1.50	1.75	2.00	2.25	2.50	2.75	3.25	3.75	4.25

S. S. & Co ... dis 33⅓&2 %
"Acme" ... dis 60 %

Gauges.
Marking ... dis 60&10 %
Wire ... dis 10&10 %
Wire, Wheeler, Madden & Co ... dis 10 %

Gimlets.
Nail and Spike ... dis 50&10&5 %
"Eureka" Gimlets ... dis 40&10 %
"Diamond" Gimlets ... dis 40&10 %
Double Cut, Shepardson's ... dis 45 %
Double Cut, Ives' ... dis 50 %
Double Cut, Douglass' ... dis 40 %
"Bee" ... ⅌ gross $12, dis 25 %

Glue Pots.
Tinned and Enameled ... dis 40 @ 40&5 %
Family, Howe's "Eureka" ... dis 40 %
Family, L. F. & C.'s "Handy" ... dis 45 %

Grindstone Fixtures.
Sargent's Patent ... dis 70&10&10 %
Reading Hardware Co ... dis 35&10 %

Gun Wads.
U. M. C. & W. R. A.—B. E., 11 up ... $1.60 / U. M. C. & W. R. A.—B. E., 9&10 ... 1.85 / U. M. C. & W. R. A.—B. E., 7&8 ... 2.10 / U. M. C. & W. R. A.—P. E., 11 up ... 2.50 / U. M. C. & W. R. A.—P. E., 9&10 ... 3.20 / U. M. C. & W. R. A.—P. E., 7&8 ... 4.00 } dis 10 %
Eley's B. E., 11 up ... 1.75
Eley's P. E., 11 @ 20 ... 2.80

Hack Saws.
Griffin's Hack Saws, complete ... dis 40&10 %
Griffin's Hack Saw, Blades only ... dis 40&10 %
Star Hack Saws and Blades ... dis 25 %

Halters.—Covert's Pat. ½ Jute ... dis 50&10 %
Covert's Hemp Horse and Cattle Ties ... dis 50&10 %
Covert's Jute Horse and Cattle Ties ... dis 60 %
Meneely's Pat. Adjustable Hemp and Jute..dis 50&10 %
Meneely's Hemp and Jute Horse and Cattle Ties ... dis 50&10 %

Hammers.—Maydole's ... dis 15&10 %
Cheney's, new list, March, 1883 ... dis 20&10 %
Hartford Hammer Co.'s Nail Ham's..dis 25&5@25&10 %
Buffalo Hammer Co ... dis 30 @ 35 %
C. Hammond & Son ... dis 40&10 @ 40&10&10 %
Humason & Beckley ... dis 15 @ 25 %
Verree ... dis 5 %
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 and 1.75.dis 25&10 %
Nelson Tool Works ... dis 40&10 %
Warner & Nobles ... dis 10 %
Yerkes & Plumb, A. E. Nail ... dis 40&10 %
Wilkinson's Smiths' ... 10½¢ @ 11¢ ⅌ lb
Heavy Hammers and Sledges ... dis 60&10 %

Hand Cuffs and Leg Irons.
Providence Tool Co., Hand Cuffs, $15.00 ⅌ doz..dis 10 %
Providence Tool Co., Leg Irons, $25.00 ⅌ doz....dis 10 %
Tower's ... dis 25 %
Daley's Improved Hand Cuffs: 2 Hands, Polished, ⅌ doz, $48; Nickeled, $57; 3 Hands, Polished, ⅌ doz, $72; Nickeled, $84 ... dis 20 %

Handles.—Door or Thumb Latches.

Nos.	0	1	2	3	4	
Per doz.	$0.90	1.00	1.18	1.35	1.50	dis 60&10&10 %

Roggin's Latches ... ⅌ doz. 32¢ @ 37¢ net
Bronze Iron Drop Latches ... ⅌ doz. 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 ... net
Barn Door ... ⅌ doz. $1.40, dis 10&10 %
Wrought Chest ... dis 70 %
Surface Chest ... dis 70 %
Flush Chest ... dis 70 %
Lifting ... dis 70 %
Saw and Plane ... dis 40&10 %
Boynton's Loop Saw Handles ... 50¢, dis 60 %
Hammer and Hatchet ... dis 20 %
Brad Awl ... ⅌ gross $2.00
Hickory Firmer Chisel, assorted ... ⅌ gross $4.50 / Hickory Firmer Chisel, large ... ⅌ gross 5.00 / Apple Firmer Chisel, assorted ... ⅌ gross 5.00 / Apple Firmer Chisel, large ... ⅌ gross 6.00 / Socket Firmer Chisel, assorted ... ⅌ gross 3.00 / Socket Framing Chisel, assorted ... ⅌ gross 5.00 } dis 40
File, assorted ... ⅌ gross 2.75 / Auger, assorted ... ⅌ gross 5.00 / Auger, large ... ⅌ gross 7.00 } dis 25&10 %
Patent Auger, Ives' ... dis 25 %
Patent Auger, Douglass' ... ⅌ set $1.25 net
Patent Auger, Swan's ... ⅌ set $1.00 net

Hangers.
Barn Door, old patterns ... dis 60&10&10 %
Barn Door, New England ... dis 70 %
Climax (Anti-Friction) ... dis 55 %
Zenith Anti-Friction Wood Track ... dis 55 %
Wood Track, Iron Clad ... ⅌ ft. 8¢, dis 50&5 @ 50&10 %
Reed's Steel Arm ... dis 40 %
Challenge ... dis 50 %
"Champion" Medina Mfg Co ... dis 60 %
Sterling Improved (Anti-Friction) ... dis 65&10 %
Double Cut, Hartwell's ... dis 40&10 %
Victor, No. 1, $15; No. 2, $16.50; No. 3, $18 ... dis 50&2 %
Cheritree ... dis 50&5 %
Kidder's ... dis 50&10 %
U. S ... dis 60&10 %
The "Boss" ... dis 60 %
Best Anti-Friction ... dis 60 %
Duplex (Wood Track) ... dis 60 %
Terry's Patent ... ⅌ doz. pr., 3½ in. $10; 5 in., $12 ... dis 40&5 %
Cronk ... No. 4, $12; No. 5, $14.40; No. 6, $18 ... dis 50&5 @ 50&10 %
Architect ... ⅌ set $6.00, dis 20 %
Eclipse ... dis 20&10
Felix ... ⅌ set $4.50, dis 20 %
Hamilton Wrought ... dis 50 @ 50&5 %
Richards', (lots of 50 sets dis 20&10&10 %)..dis 20&10 %
Lane's Steel Anti-Friction ... dis 30&10 %
The Ball Bearing Door Hanger ... dis 20&10 @ 25&10 %
Warner's Patent ... dis 20 %
Stearns' Anti-Friction ... dis 20 %

Harness Snaps.
Anchor (T. & S. Mfg Co.) ... dis 65 %
Henshaw's, list of 1½ changed to $14.00 ... dis 65 %
Judd's, list of 1½ changed to $14.00 ... dis 65 %
Fitch's (Bristol), list of 1½ changed to $14.00 ... dis 65 %
Hotchkiss ... dis 10 %
Andrews ... dis 50 %
Sargent's Patent Guarded ... dis 70&10&10 %
German, old list ... dis 75 %
German, Sargent's new list ... dis 60&10 @ 60&10&10 %
Covert ... dis 50 %
Covert, New Patent, new list ... dis 50 %
Covered Spring ... dis 66⅔&10 %
Meneely's Pat. Safety, new list ... dis 60&10 %
Meneely's Pat. Guard, new list ... dis 60&10 %
Meneely's Pat. Chain Link ... dis 60&10 %

Hatchets.
Isaiah Blood ... dis 35 @ 40 %
Shingling, Nos. 1 2 3 ... ⅌ doz $7.25 $8.00 $8.75
Claw, Nos. 1 2 3 ... ⅌ doz 7.75 8.50 9.25
Lathing, Nos. 1 2 3 ... ⅌ doz 7.50 8.00 8.50
Hunt's ... 40 %
Shingling, Nos. 1 2 3 ... ⅌ doz $7.25 $8.00 $8.75
Claw, Nos. 1 2 3 ... ⅌ doz 7.75 8.50 9.25
Lathing, Nos. 1 2 3 ... ⅌ doz 7.50 8.25 9.00
Hurd's ... dis 40&5 @ 45 %
Shingling, Nos. 1 2 3 ... ⅌ doz $8.00 $8.50 $9.00
Claw, Nos. 1 2 3 ... ⅌ doz 9.00 9.50 10.00
Lathing, Nos. 1 2 3 ... ⅌ doz 8.00 8.50 9.00
Yerkes & Plumb ... dis 40&10@40&10&5 %
Shingling, Nos. 1 2 3 ... ⅌ doz $7.50 $8.00 $8.50
Claw, Nos. 1 2 3 ... ⅌ doz 8.00 8.50 9.00
Lathing, Nos. 1 2 3 ... ⅌ doz 7.50 8.00 8.50
Underhill Edge Tool Co ... dis 40 %
Shingling, Nos. 1 2 3 ... ⅌ doz $7.25 $8.00 $8.75
Claw, Nos. 1 2 3 ... ⅌ doz 7.75 8.50 9.25
Lathing, Nos. 1 2 3 ... ⅌ doz 7.50 8.25 9.00
Lathing, Solid Steel ... dis 30 @ 35 %
No. 1, $12. Boston Pattern, $18.
C. Hammond & Son ... dis 45&5 @ 50 %
Shingling, Nos. 1 2 3 ... ⅌ doz $8.00 $8.50 $9.00
Lathing, Nos. 1 2 3 ... ⅌ doz 8.00 8.50 9.99
Claw, Nos. 1 2 3 ... ⅌ doz 8.50 9.00 9.50
Broad, Nos. 1 2 3 ... ⅌ doz 11.00 13.50 16.00
Simmons ... dis 35 @ 40 %
Shingling, Nos. 0 1 2 3..⅌ doz $7.50 $8.00 $8.50 $9.00
Claw, Nos. 0 1 2 3..⅌ doz 8.50 9.00 9.50
Lathing, Nos. 0 1 2 3..⅌ doz 8.00 8.50 9.00
Broad, Nos. 1 2 3 4..⅌ doz 9.00 10.00 12.00 14.00
Broad, Nos. 5 6 7 8..⅌ doz 16.00 18.00 20.00 22.00
Collins ... dis 10 %
Shingling, Nos. 1 2 3 ... ⅌ doz $5.50 $6.00 $6.50
Claw, Nos. 1 2 3 ... ⅌ doz 6.00 6.50 7.00
Lathing, Nos. 1 2 3 ... ⅌ doz 5.50 6.00 6.50
Peck's Champion Blade ... dis 40&10 @ 40&10&5 %
Shingling, Nos. 1 2 3 ... ⅌ doz $8.00 $8.50 $9.00
Lathing, Nos. 1 2 3 ... ⅌ doz 8.00 8.50 9.00
Claw, Nos. 1 2 3 ... ⅌ doz 9.00 9.50 10.00
Half, Nos. 1 2 3 ... ⅌ doz 8.00 8.50 9.00
Broad, Nos. 1 2 3 ... ⅌ doz 10.00 11.00 13.00
Broad, Nos. 4 5 6 ... ⅌ doz 14.50 16.50 18.00
Ax Pattern, Nos. 1 2 3 ... ⅌ doz 10.00 11.00 12.00

Hay Knives.
"Lightning" ... ⅌ doz $18, dis 10 @ 10&5 %
Electric ... ⅌ doz $12.50 net
Wadsworth's ... dis 35&5 %
Heath Patent ... ⅌ doz $13.50 net

Hinges.
Gate, Western ... ⅌ doz $4.40, dis 55 %
Gate, N. E ... ⅌ doz $7.00, dis 55 %
Gate, N. E. Reversible ... ⅌ doz $5.20, dis 55 %
Gate, Clark's, Nos. 1 2 3 ... dis 60&10&2 %
Gate, N. Y. State ... ⅌ doz $5.00, dis 55 %
Gate, Automatic ... ⅌ doz $12.50, dis 50 %
Gate, Common Sense ... ⅌ doz pair $4.50, dis 50 %
Gate, Seymour's ... dis 45&10 %
Gate, Shepard's, Nos. 1, 2, 10 and 20 ... dis 60&10&10 %
Gate, Shepard's, No. 3 ... dis 60&10&5 %
Reed's Latch and Hinge ... ⅌ doz sets $12, dis 50 %
Rolled Blind Hinges ... dis 60&10 %
Rolled Plate ... dis 70 %
Rolled Raised ... dis 70 %
Plate Hinges { 8, 10 & 12 in., ⅌ lb ... 4¢
"Providence" { over 12 in., ⅌ lb ... 3¢
Screw Hook and Strap { 8, 10, 12 in., ⅌ lb ... 3¼@3½¢ / 14 to 36 in., ⅌ lb ... 2¾@2¾¢
Heavy Welded Hook { 8 to 12 in., ⅌ lb ... 3¼@3½¢ / 14 in. & up, ⅌ lb ... 3¼@3½¢
Screw Hook and Eye ... ½ in ... ⅌ doz $1.50 / ⅝ in ... ⅌ doz $2.45 / ¾ in ... ⅌ doz $3.80 } dis 10 %
Wrought Strap and T ... dis 65&10&2 % cash

Hoes.
Garden, Mortar, &c ... 1st quality, dis 60&10 %
Planter's, Cotton, &c ... 1st quality, dis 60&10 %
Planter's, Scovil Pattern ... dis 60&10 %
Magic ... ⅌ doz $4.75
Grub ... ⅌ doz $10.50 @ $12.00, dis 60&2 %

Hog Rings and Ringers.
Perfect Rings ... ⅌ doz boxes $2
Perfect Ringers ... ⅌ doz. $3
Blair Hog Ringers ... ⅌ doz $2.40

Hoisting Apparatus
"Moore's" Hand Hoist, with Lock Brake ... dis 15 %
"Moore's" Differential Pulley Block ... dis 20 %

Hollow-Ware.
Stove Hollow-Ware, Ground ... dis 50&5@50&10&5 %
Stove Hollow-Ware, Unground ... dis 60@60&10 %
Enameled and Tinned Hollow-Ware—
Kettles ... dis 60@60&5 %
Oval Boilers, Saucepans and Glue Pots.dis 40@40&5 %
Gray Enameled Ware ... dis 45 %
Rustless Hollow-Ware ... dis 50&5@50&10 %
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	50¢	55¢	60¢	70¢

Hooks.
Bird Cage, Sargent's list ... dis 66⅔&10 %
Bird Cage, Reading ... dis 60&10@60&10 %
Cotton ... ⅌ doz $4.00, dis 50 %
Cotton Patented (N. Y. Mallet & Handle W'ks), dis 30 %
Cotton (Humason & Beckley Mfg. Co.)..dis 50&10@60 %
Belt ... dis 80@80&5 %
Bench Hooks ... See Bench Stops
Clothes Line, Sargent's list ... dis 66⅔&10 %
Clothes Line, Reading list ... dis 66⅔&10 %
Ceiling, Sargent's list ... dis 60&10&10&10 %
Harness, Reading list ... dis 60&10&10 %
Coat and Hat, Sargent's list ... dis 60&10&10&10 %
Coat and Hat, Reading ... dis 60&10&10 %
Wire Coat and Hat, Gem ... dis 40 %
Wire Coat and Hat, Miles' ... dis 70 %
Tassel and Picture (T. & S. Mfg. Co.) ... dis 50 %
Wrought Staples and Hooks and Staples ... dis 80&10@80&10&5 %
Wire Screw Hooks and Eyes..See Bright Wire Goods
Grass and Bush ... dis 55 @ 60 %
Whiffletree—Patent ... dis 55 %
Hooks and Eyes—Malleable Iron ... dis 70 %
Hooks and Eyes—Brass ... dis 60&10&10 %
Fish Hooks, American ... dis 40&10 %

Horse Nails.

		Nos. 5	6	7	8	9	10	
Ausable	⅌ lb	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
Clinton, Pl'n.	⅌ lb		23¢	21¢	20¢	19¢	18¢	dis 25&10 %
Clinton, Fin.	⅌ lb		24¢	22¢	21¢	20¢	19¢	dis 25&10 %
Essex	⅌ lb	31¢	28¢	26¢	25¢	24¢	23¢	dis 40 %
Putnam	⅌ lb	27¢	24¢	22¢	21¢	20¢	19¢	dis 5&7 %
Vulcan	⅌ lb	26¢	23¢	21¢	20¢	19¢	18¢	dis 12½ %
Northwest'n.	⅌ lb	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&5&5 %
Globe	⅌ lb	26¢	23¢	21¢	20¢	19¢	18¢	dis 10&5&5 %
A. C.	⅌ lb	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
C. B.-K.	⅌ lb	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10 %
Champlain	⅌ lb	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
New Haven	⅌ lb	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
Bridgewater	⅌ lb	26¢	23¢	21¢	20¢	19¢	18¢	dis 30 %
Saranac	⅌ lb	26¢	23¢	21¢	20¢	19¢	18¢	dis 25 @ 30 %
Champion	⅌ lb	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
Capewell	⅌ lb	31¢	28¢	26¢	25¢	24¢	23¢	dis 33⅓&5 %
Star	⅌ lb	26¢	23¢	21¢	20¢	19¢	18¢	dis 25 %

Horse Shoes
Burden, at factory ... ⅌ keg $3.60
R. I. Horse Shoe Co., Perkins' Imp., at factory ... ⅌ keg $3.60
Walker's Forged ... ⅌ keg $3.60
Mule Shoes, at factory ... ⅌ keg $4.60

Hose, Rubber ... 70 @ 70&5 %
N. Y. Belting & Packing Co., Standard ... dis 50&10@50&10&5 %

Ice Awls, Chisels, &c.
American Ice Chisel Pol'd ... ⅌ doz $3.00, dis 20 %
National Ice Chisel ... ⅌ doz $6.25, dis 20 %
Novelty Ice Breakers ... ⅌ doz $6.25, dis 20 %
White's Sliding Head Picks ... ⅌ doz $2.50, dis 40 %
Dunlap's Ring Picks ... ⅌ doz $2.00, dis 25 %
Wood Head Picks, Sargent's ... ⅌ doz $1.60, dis 50&10 %
Iron Head Picks, Sargent's ... ⅌ doz $1.25, dis 50&10 %
Ice Mallets, Pick in handle ... ⅌ doz $2.00, dis 15 %
Ice Axes, Small Cast or Mall ... ⅌ doz $1.25, dis 20&10 %
Combination Ice Tools ... ⅌ doz $2.00 net
Acme Ice Pick and Tongs ... ⅌ gross $55.00, dis 50&10

Ice Cream Freezers.
Buffalo Champion, S. S. & Co ... dis 60&2

Ice Tongs.
Champion, S. S. & Co ... ⅌ doz $4.00, dis 25&10 %
Family ... ⅌ doz $2.75, dis 20 %

Jack Screws.
Millers Falls list ... dis 40&10 @ 50 %

Kettles.
Brass, 7 to 17 in. inclusive ... ⅌ lb 20¢ Net
Brass larger than 17 inches ... ⅌ lb 22¢ Net
Enameled and Tea Kettles ... See Hollow-Ware

Knives.
Ames' Butcher Knives ... dis 25 %
Nichols' Butcher Knives ... dis 40&10 %
Ames' Shoe Knives ... dis 15 @ 15&5 %
Ames' Bread Knives ... ⅌ doz $1.50, dis 15 @ 15&5 %
Moran's Shoe and Bread Knives ... dis 20 %
Goodell Co., Butcher, Shoe, Bread, &c ... dis 40 %
Hay and Straw ... See Hay Knives
Table and Pocket ... See Cutlery

Knobs.
Carriage, Japanned ... ⅌ gross 80¢, dis 60&10 %
Base, Rubber Tip ... dis 70&10&5 %
Hemacite Door Knobs, new list ... dis 35&5 %
Door Mineral / Door Por. Jap'd / Door Por. Plated / Door Por. } Same discounts as Door Locks.
Furniture Plain ... 75¢ gross inch, dis 10 %
Furniture, Wood Screws ... dis 25&10 %
Picture, Judd's ... dis 60&10&10 %
Picture, Sargent's ... dis 65&10 %
Hemacite, Picture ... dis 35 %
Shutter, Porcelain ... dis 65&10 %

Ladles.
Melting, Sargent's ... dis 60&10 %
Melting, Reading ... dis 40&10 %
Melting, Monroe's Patent ... ⅌ doz. $4.00, dis 40 %
Melting, P. S. & W ... dis 30&10 %
Melting, Warner's ... dis 30 %

Lanterns.
Tubular, Standard No. 0, ⅌ doz ... $6.75 @ $7.00
Tubular, Standard No. 1, ⅌ doz ... 8.50 @ 9.00
Tubular, Lift Wire, No. 0, ⅌ doz ... 8.50
Tubular, Lift Wire, No. 1, ⅌ doz ... 10.00
Guards for Tubulars, add ⅌ doz ... .25
Police, Small, $6.00; Medium, $7.25; Large, $9.75 ... dis 10@15 %
Porter's Tin R. R ... $10 dis 20 %
Owl ... $9, dis 20@25 %

Lawn Mowers.
Excelsior Roller ... dis 40&3 %
Excelsior Side Wheel ... dis 40&10&3 %
Clipper ... dis 40&10&3 %
Philadelphia ... dis 40&10&3 %

Lemon Squeezers.
Porcelain Lined ... ⅌ doz. $6.00, dis 35&5 %
Wood ... ⅌ doz. $3.00, dis 35 %
Eureka, Tinned ... ⅌ doz. $8.00, dis 10 %
Dunlap's Improved ... ⅌ doz. $3.75, dis 20 %
Sammis' ... No. 1, $5; 2, $9; 12, $18 ⅌ doz. dis 25&10 %
Townsend's Patent ... $6.00 ⅌ doz., dis 33⅓ %
Jennings' "Star" ... $3.00 ⅌ doz. net
The "Boss" ... ⅌ doz. $4.00, dis 10&10 %
Dean's Nos. 1, ⅌ doz. $15.00; 2, $8.00; 3, $5.50 ... dis 55 %
Little Giant ... dis 50 %
Acme ... ⅌ gross $55.00, dis 50 %

Lines.
Cotton and Linen Fish, Draper's ... dis 50 %
Draper's Chalk ... dis 60 %
Draper's Mason's Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25..dis 25 %
Cotton Chalk ... dis 55 %
Silver Lake, Braided, Nos. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ⅌ gross ... dis 25
Masons' Linen, No. 3½, $1.50; No. 4, $2; No. 4½, $2.50 ... Net
Masons' Colored Cotton ... dis 45 %
Wire Clothes, No. 18, $3.50; No. 19, $3.00; No. 20, $2.50 ...

Locks, Padlocks, Cabinet Locks, &c.
Door Locks, new list, Dec. 10, 1884. Some numbers changed Feb. 5, 1885 ... dis 66⅔&2 %
Reading Hardware Co. (list Feb. 2, 1885) ... dis 70 %
Perkins' Burglar Proof ... dis 60&25 %
Plate ... dis 33⅓&2 %
F. Many's "Extension Cylinder" ... $10.50 ⅌ doz net
Barnes Mfg. Co ... dis 40 %
Yale Flat Key ... dis 40 %
Dietz Flat Key ... dis 20 %
Stoddard ... dis 30 %
Langstroth & Crane's:
Round Key Latches ... dis 40&10 %
Flat Key Latches ... dis 33⅓&10 %
Cabinet, Eagle / Cabinet, Gaylord / Cabinet, Parker / Cabinet, Corbin } Changes made in list price of some numbers March 10, 1884, and Jan. 1, 1885, dis 40&2 % cash.
Cabinet, A. E. Deitz ... dis 30@40 %
Cabinet, Stoddard Lock Co ... dis 30 %
A. E. Deitz, Flat Key Drawer ... dis 30@40 %
Yale new list ... dis 40 %
"Shepardson" or "U. S." ... dis 35 %
"Felter" or "American" ... dis 40&10 %
Eagle and Corbin Trunk ... dis 25&2 %
"Champion" Night Latches ... dis 40 %
"Champion" Cabinet and Combination ... dis 33⅓ %

PADLOCKS.
Hotchkiss ... dis 30 %
Russell & Erwin / Mallory, Wheeler & Co / Nimick & Brittan Mfg. Co / Wm. Wilcox & Co / Norwich Lock Co } New list Dec. 23, 1884. dis. 66⅔&2 %.
Yale Lock Mfg. Co.'s ... dis 40 %
Eagle ... dis 25&2 %
Romer's, Nos. 0 to 91 ... dis 40 %
Romer's, Nos. 200 to 505 ... dis 25 %
A. E. Dietz ... dis 35 %
"Star" ... dis 15 %
"Horse Shoe," ⅌ doz., $9 ... dis 40 %
Fraim's Pat. Scandinavian, new list (low) ... dis 60 %
Barnes Mfg. Co ... dis 40 %
Nock's ... dis 30 %
Brown's Patent ... dis 25 %
Scandinavian ... dis 90 %
"Champion" Padlocks ... dis 33⅓ %

Lumber Tools.
Ring Peavies, "Blue Line" Finish ... ⅌ doz $20.00
Ring Peaves, Common Finish ... ⅌ doz $18.00
Steel Socket Peavies ... ⅌ doz $21.00
Mall. Iron Socket Peavies ... ⅌ doz $19.00
Cant Hooks, "Blue Line" Finish ... ⅌ doz $16.00
Cant Hooks, Common Finish ... ⅌ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish ... ⅌ doz $16.00
Cant Hooks, Mall. Socket Clasp, Common Finish ... ⅌ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Fin. ⅌ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.. ⅌ doz $12.00
Hand Spikes ... ⅌ doz 6 ft., $15.00; 8 ft., $20

	12 ft.	14 ft.	16 ft.	18 ft.	20 ft.
Pike Poles, Pike & Hook, ⅌ doz	$11.50	12.50	14.50	17.50	21.50
Pike Poles, Pike only, ⅌ doz	10.00	11.00	13.00	16.00	20.00
Pike Poles, not Ironed, ⅌ doz	6.00	7.00	9.00	12.00	16.00
Setting Poles, ⅌ doz	14.00	15.00	17.00	....	....

Swamp Hooks ... ⅌ doz $18.00
Landing Blocks ... ⅌ doz $22.50
Skidding Tongs ... ⅌ doz $51.00
Log Binders ... ⅌ doz $26.00
Bended Boot Calks, 1 to 5 M, dis 25 %; 5 to 10 M, dis 30 %
Square Steel Boot Calks ... dis 40 %
Chain Rafting Dogs ... ⅌ 100 $12.50
Ring Rafting Dogs ... ⅌ 100, med., $10.00; large, $12.00
Timber Grapples ... ⅌ doz $30.00

Lustro.
Four-ounce bottles ......₩ doz, $1.75 ; ₩ gro. $17.00 net

Mallets.
Hickory ... dis 10&10&5 %
Lignumvitæ ... dis 10&10&5 %
Penfield Block Co., Lignumvitæ and Hickory .. dis 30 %

Mattocks.
Regular list ... dis 60&10@60&10&5 %

Meat Cutters.
Dixon's (P. S. &W.) Nos 1 2 3 4
₩ doz..$14.00 17.00 19.00 30.00—dis 45 %
Miles' Challenge ... Nos. 1 2 3
₩ doz..$22.00 30.00 40.00—dis 45 %
Woodruff's (P. S. & W.) ... Nos. 100 150
₩ doz. $15.00 18.00—dis 45 %
Hales' ... Nos. 11 12 13
₩ doz...$27.00 33.00 50.00 { dis 60&10&2@ 60&10&10&2 %
Draw Cut..Nos. 5 2 6 8 10
Each..$50.00 75.00 80.00 225.00 400.00—dis 20 %
American ... dis 35 %
Nos. 1 2 3 4 B
Each $5.00 7.00 10.00 25.00 50.00 60.00
Enterprise ... dis 25@20&10 %
Nos. 10 12 22 32 42
Each $3.00 2.50 4.00 6.00 10.00
Kieser's No. 55 ... $40 ₩ doz, dis 40 @ 40&5 %
Kieser's Gem ... $25 ₩ doz, dis 40 @ 40&5 %
Kieser's Monarch ... $45 ₩ doz, dis 40 @ 40&5 %
Kieser's Butcher ... $40 each, dis 20 @ 20&5 %
Pennsylvania ... dis 40&10 %
Nos. 1 2 3 00
₩ doz $24.00 28.00 36.00 28.00
Beef Shavers (Enterprise Mfg. Co.) ... dis 20&10

Mincing Knives.
Am. (2d quality), ₩ gro, 1 blade, $7; 2 blades, $12; 3 blades, $18 ... Net
Lothrop's ... dis 20&10 %
Smith's, ₩ doz, Single, $2.00; Double, $3 ... dis 40@45 %
Cowles Hdw. Co. ... dis 60 %

Molasses Gates.—Stebbins' Patterns ... dis 80 %
Stebbins' Genuine ... dis 75 %
Stebbins' Tinned Ends ... dis 40&10 %
Chase's Hard Metal ... dis 50&10 %
Bush's ... dis 20 %
Lincoln's Pattern ... dis 70&10 %
Weed's ... dis 20&10 %
Boss Nos.. 1 2 3 4
$7.00 8.00 9.00 10.00..₩ doz, dis 60&10&10 %

Money Drawers.—₩ doz., $18.

Nails ... See Trade Report
Wire Nails ... dis 50&10 @ 50&10&5 %
Wire Carpet Nails ... See Tacks

Nail Puller.
Curtiss Hammer ... ₩ doz $9.00 net
Giant, No. 1 ... ₩ doz $30.00, dis 10 %

Nuts and Washers.
In lots less than 100 ℔, ₩ ℔ add ½¢ to list; 1 ℔ boxes, 1¢ to list.
Square Nuts ... 9¼¢ off list
Hexagon ... 10¼¢ off list
Washers ... 9½¢ @ 10¢ off list

Nut Crackers.
Table (Humason & Beckley Mfg. Co.) ... dis 40 %
Blake's Pattern ... ₩ doz $2.00, dis 10 %
Turner & Seymour Mfg. Co. ... dis 50 %

Oakum.
Government ... ₩ ℔ 7¼@7½¢
U. S. Navy ... ₩ ℔ 6¾@7 ¢
Navy ... ₩ ℔ 5¾@6 ¢

Oilers.
Zinc and Tin ... dis 60&10&5 %
Brass and Copper ... dis 50&10 %
Malleable (Hammer's), No 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₩ doz ... dis 10 %
Prior's Patent or "Paragon" Zinc dis 60&5 @ 60&10 %
Prior's Patent or "Paragon" Brass ... dis 50 %
Olmstead's Tin and Zinc ... dis 60 %
Olmstead's Brass and Copper ... dis 50 %
Broughton's Zinc ... dis 60 %
Broughton's Brass ... dis 50 %

Packing, Steam.
N. Y. Belting & Packing Co ... dis 50 @ 50&10 %
American Packing ... 11¢
Russia Packing ... 14¢
Italian Packing ... 16¢
Cotton Packing ... 15 @ 18¢

Peach Parers.
Rotary Knife ... ₩ doz $15, dis 10 %
Diamond State ... ₩ doz $15, dis 10 %

Pencils.
Faber's Carpenters' ... high list, dis 50 %
Faber's Round Gilt ... ₩ gro $5.25 net
Dixon's Lead ... ₩ gro $4.50 net
Dixon's Lumber ... ₩ gro $6.75 net
Dixon's Carpenters' ... dis 40&10 %

Picks.
Railroad, 5 to 6, $11.00; 6 to 7, $12.dis60&10@60&10&5 %
Adze Eye, 5 to 6, $12.00; 6 to 7, $13.dis60&10@60&10&5 %

Picture Nails.
Brass Head, Sargent's list ... { dis 50&10&10 @ 50&10&10&10 %
Brass Head, Combination list ... dis 50&10 %
Porcelain Head, Sargent's list..dis 50&10 @ 50&10&10 %
Porcelain Head, Combination list ... dis 40&10 %
Niles' Patent ... dis 40 %

Pinking Irons ... ₩ doz 65¢ net

Planes and Plane Irons.
Bench, First Quality ... dis 20&2 % } Small extras
Bench, Second Quality ... dis 25&2 % } sometimes given
Molding ... dis 15&2 % } by jobbers
Bailey's (Stanley R. & L. Co.) ... dis 20&10 %
The Stanley (S. R. & L. Co.) ... dis 20&10 %
Bailey's "Victor" ... dis 20&10 %
Steer's Iron Planes ... dis 35 %
Meriden Mal. Iron Co.'s Iron Planes ... dis 20&10 %
Davis's Iron Planes ... dis 20&10 %
Plane Irons ... dis 20&10 %
Plane Irons, Butcher's ... $5.00 @ $5.25 to £
Plane Irons, Buck Bros ... $5.00 to £
Plane Irons, The Globe Mfg. Co., "Baldwin Iron" ... dis 33⅓ %
L. & I. J. White ... dis 25 %

Pliers and Nippers.
Button's Patent ... dis 33⅓ @ 30&10 %
Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₩ doz ... dis 20&10 %
Humason & Beckley Mfg. Co ... dis 50 %
Gas Pliers ... dis 60 %
Eureka Pliers and Nippers ... dis 40 %
Russell's Parallel ... dis 25 %
P. S. & W. Cast Steel ... dis 50 %
P. S. & W. Tinners' Cutting Nippers ... add 6 % dis 10 %

Plumbs and Levels.
Standard List ... dis 70&10 %
Disston's ... dis 45&10 %
Pocket Levels ... dis 70&10 %
Davis' Inclinometers ... dis 10&10 %

Post Hole and Tree Augers and Diggers.
Samson Post Hole Digger ... ₩ doz $36.00, dis 20&10 %
Fletcher Post Hole Augers ... ₩ doz $36.00. dis 20 %
Eureka Diggers ... ₩ doz $18 @ $20
Leed's ... ₩ doz $9.50 @ $10.50
Vaughan's Hollow Tube Post Hole ... per doz, $24.00 ... dis 33⅓ @ 20&10&10 %
Kohler's Little Giant ... ₩ doz $24
Kohler's Hercules ... ₩ doz $21.00
Schneidler ... ₩ doz $24, dis 2 % cash
Ryan's Post Hole Diggers ... ₩ doz $24
Cronk's Post Bars ... ₩ doz $72, dis 50&5 @ 50&10 %

Potato Parers.
White Mountain ... ₩ doz $5.50
Antrim Combination ... ₩ doz $8.00
Hoosier ... ₩ doz $13.50

Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw. ₩ doz $18.00 ... dis 20&10 %
Disston's Pruning Hook ... ₩ doz $12.00, dis 20&10 %
E. S. Lee & Co.'s Pruning Tools ... dis 40 %
Pruning Shears ... ₩ doz $3.75 @ $4.00 net
Henry's Pruning Shears ... ₩ doz $4.50 net
Wheeler, M. & Co.'s Combination ... ₩ doz $12, dis 20 %
Dunlap's Saw and Chisel ... ₩ doz $8.50, dis 30 %
J. Mallinson & Co., A. & B. Co. list ... dis 33⅓ %

Pulleys.
Hot House, Awning, &c ... dis 66⅔&10 %
Japanned Screw ... dis 66⅔&10 %
Brass Screw ... dis 70&10 %
Japanned Side ... dis 66⅔&10 %
Japanned Clothes Line ... dis 60&10 %
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 { dis 50&10 @ 50&10&5 %
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ... dis 50 %
Hay Fork, "F" Common and Pat. Bushed ... dis 20 %
Hay Fork, Tarbox Pat. Iron ... dis 20 %
Shade Rack ... dis 45 %
Tackle Blocks ... See Blocks

Pumps.
Cistern, Best Makers ... dis 50 %
Pitcher Spout, Best Makers ... dis 60 %
Pitcher Spout, Cheaper Goods ... dis 70 @ 70&5 %

Punches.
Saddlers' or Drive, good quality ... ₩ doz $0.75
Bemis & Call Co.'s Cast Steel Drive ... dis 50&5 %
Bemis & Call Co.'s Springfield Socket ... dis 50&5 %
Spring, good quality ... ₩ doz $2.50 @ $2.60
Spring, Leach's Patent ... dis 15 %
Bemis & Call Co.'s Spring and Check ... dis 40 %
Solid Tinners' ... ₩ doz $1.44, dis 55 %
Tinners' Hollow Punches ... dis 20&2 %

Rail.
Sliding Door, Wrought Brass ₩ ℔ 35¢, dis 20@25 %
Sliding Door, Bronzed Wrt. Iron ... ₩ foot 7¢
Sliding Door Iron, Painted ... ₩ foot 4¢, dis 20&10&5 %
Barn Door, Light ... Inch. ½ ⅝ ¾
Per 100 feet ... $2.50 3.00 4.40—dis 10 %
B. D. for N. E. Hangers—
Small. Med. Large
Per 100 feet ... $2.15 2.70 3.25 net
Terry's Wrought Iron, 5¢ ₩ foot ... net
Victor Track Rail, 7¢ ₩ foot ... dis 50&2 %

Rakes.
Cast Steel ... dis 60&10 %
Malleable ... dis 60&10 @ 60&10&5 %

Razors.
J. R. Torrey Razor Co. ... dis 20 %
Wostenholme & Butcher ... $10 to £, dis 10 %

Razor Strops.
Genuine Emerson ... dis 60 %
Imitation Emerson ... ₩ doz $2.00, dis 20&10&10 %
Torrey's ... dis 20 %
Badger's Belt and Combination ... ₩ doz $2

Rivets.
Black and Tinned Iron, Flat Head M Rivets (in packages and in bulk) / Block and Carriage (in C packages) } dis 50 %
Iron Rivets (other than above) in bulk / Black and Tinned Burrs } dis 45 %
Copper Rivets and Burrs ... dis 60 @ 60&5 %
Nos. 7 8 9 10 11 12 13 14 15
₩ ℔ .49¢ 50¢ 52¢ 54¢ 56¢ 58¢ 60¢ 65¢ 70¢

Rivet Sets ... dis 50&2 %

Rods.—Stair, Brass ... dis 25&5 %
Stair Black Walnut ... ₩ doz 50¢

Rollers.—Barn Door, Sargent's list..dis 60&10&10 %
Acme (Anti-Friction) ... dis 55 %
Union Barn Door Roller ... dis 70 %

Rope.
Mnf'rs list, July 1, 1885.
Manila ... ½ inch and larger ₩ ℔ 13½¢
Manila ... ⅜ inch ₩ ℔ 14 ¢
Manila ... ¼ and 5-16 inch ₩ ℔ 14½¢
Manila Tarred Rope ... ₩ ℔ 13 ¢
Manila, Hay Rope ... ₩ ℔ 13½¢
Sisal ... ½ inch and larger ₩ ℔ 8½¢
Sisal ... ⅜ inch ₩ ℔ 9 ¢
Sisal ... ¼ and 5-16 inch ₩ ℔ 9½¢
Sisal, Hay Rope ... ₩ ℔ 8½¢
} Dis 1¢ ₩ ℔.
Cotton Rope ... ₩ ℔ 15 @ 18¢ net
Jute Rope ... ₩ ℔ 7¢

Rules.—Boxwood ... dis 80&10 %
Ivory ... dis 55 @ 55&10 %
Stephens' Ivory ... dis 50 %

Sad Irons.
From 4 to 10, at factory ... ₩ 100 ℔ $2.25 @ $2.50
Self-Heating ... ₩ doz. $9.00 net
Self-Heating, Tailors' ... ₩ doz. $18.00 net
Gleason's Shield and Toilet ... dis 25 %
Mrs. Pott's Irons, Double Pointed ... dis 35 @ 40 %
Mrs. Pott's Irons, Square Back ... dis 35 @ 40 %
Enterprise Star Irons, new list, July 20, 1882 ... dis 35 %
Combined Fluter and Sad Iron ... ₩ doz. $15.00, dis 15 %
Chinese Laundry (N. E. Butt Co.) ... 8½¢, dis 15 %
New England ... 5¢, dis 15 %

Sand Paper and Emery Paper.
Baeder & Adamson's Flint, 00 to 1½ .. $4.50 ₩ ream
Baeder & Adamson's Flint, 2, 2½ & 3 .. 5.00 ₩ ream
Baeder & Adamson's Flint, assorted .. 4.75 ₩ ream
Baeder & Adamson's Star ... 3.75 ₩ ream
} dis 40@40&5 %
Bartles Best Flint, Nos. 00 to 1½ ... ₩ ream $4.50
Bartles Best Flint, assorted ... ₩ ream 4.50
Bartles Best Flint, Nos. 2 to 3 ... ₩ ream 5.00
Bartles Best Flint, No. 3½ ... ₩ ream 5.50
Columbia Flint, all Nos ... ₩ ream 4.00
Madison Mills Flint, all Nos ... ₩ ream 3.50
} dis 40@40&5 %
Emery Paper, 00 to 1½, $6.50; 2, $7.50; 2½, $9.50 ... dis 40 @ 40&5 %
Emery Cloth, B. A. & Co., 00 to 1½, $18; 2, $20; 2½, $24 ... dis 40 @ 40&5 %
Emery or Crocus Cloth, Sibley, 9x12 in., $16.00 }
Emery or Crocus Cloth, Sibley, 7x9 in., $10.50 } dis 20 %
New England, same list as B. & A. Flint ... dis 35&10 %
Sand Paper without brand ... ₩ ream, $2.10 net

Sash Cord.
Common ... ₩ ℔, 12½¢ @ 13¢ net
Patent ... ₩ ℔, 15¢ @ 16¢ net
White Cotton Braided ... ₩ ℔ 32¢ @ 33¢
Common Russia Sash ... ₩ ℔ 14¢
Patent " ... " 18¢
Cable Laid Italian " ... " 20¢
India Cable Laid " ... " 14¢
Silver Lake, A Quality, White ... 50¢. dis 10&10 %
Silver Lake, A Quality, Drab ... 55¢. dis 10&10 %
Silver Lake, B Quality, White..50¢. dis 10&10&10@30 %
Silver Lake, B Quality, Drab...55¢. dis 10&10&10@30 %
Silver Lake, C Quality, White (only) ... 29¢ @ 30¢
Spring Lake, A Quality ... 50 @ 55¢. dis 10&10&5 %

Sash Locks.
Clark's No. 1, $10.00; No. 2, $8.00 ₩ gross ... dis 33⅓ %
Ferguson's ... dis 33⅓ %
Morris ... dis 50&10 %
Morris' Triumph (revised list) ... dis 60 %
Walker's ... dis 10 %
Attwell Mfg. Co. ... dis 25 @ 33⅓ %
Hammond's Window Springs ... dis 40 %
Common Sense, Japanned, Coppered and Bronzed ... ₩ gross
Common Sense, Nickel Plated ... ₩ gross $12.00 net
Universal ... dis 30 %
Kempshall's Gravity ... dis 60 %
Kempshall's Model ... dis 60@60&10 %
Corbin's Daisy ... dis 60&5@60&10 %
Payson's Perfect ... dis 50&10 &5%
Hugunin's New and Improved Adjustable Sash Balances, list March, 1885 ... dis 33⅓ %
Hugunin's New Sash Locks, list March, 1885..dis 33⅓ %
Stoddard "Practical" ... dis 10 %

Sash Weights.
Solid Eyes, in ton lots ... ₩ ton, $19

Sausage Stuffers or Fillers.
Miles' "Challenge" ... ₩ doz. $30, dis 45 %
Perry ... ₩ doz. No. 1, $15; No. 0, $21 dis 45 %
Draw Cut No. 4 ... each, $30.00, dis 30 %
Enterprise Mfg. Co ... dis 25@20&10 %
Silver's ... dis 25 %

Saws
Disston's Circular, Mill and Cross Cut ... dis 45&10 %
Disston's Hand, Panel, Rip, &c ... dis 20&10 %
Atkins' Silver Steel Circular ... dis 40 %
Atkins' Selected Steel Circular ... dis 50 %
Atkins' Concaved Tooth Dexter X Cuts ... ₩ foot 55 ¢
Atkins' C. S. X Cuts, Regular ... ₩ foot 34 ¢
Atkins' Hollow Back X Cuts ... ₩ foot 22 ¢
Wheeler, Madden & Clemson Mfg. Co.'s Hand ... dis 30 @ 30&5 %
W. M. & C. Champion X Cuts, Regular ... ₩ foot 26¢
W. M. & C. X Cuts, Thin Back ... ₩ foot 29¢
Simond's Circular ... dis 35 %
Simond's Crescent-Ground Cross Cuts, patent December 26, 1882 ... dis 25 %
Peace Circular and Mill ... dis 45&10 %
Peace Hand Panel and Rip ... dis 20&10 @ 20&10&5 %
Peace Cross Cuts, Standard ... ₩ foot 25¢
Peace Cross Cuts, Thin Back ... ₩ foot 28¢
Peace Band Saws, all widths ... dis 20&10 %
Richardson's Circular ... dis 45 %
Richardson's Mill ... dis 45 %
Richardson's Cross-Cuts, No. 1, 30¢; No. 2, 27¢; No. 3, 25¢.
Richardson's Hand Panel, Butcher and Web Saws ... dis 25&5 %
Barry's Circular ... dis 45 %

Saws, Hack.—See Hack Saws.

Saw Frames.
White, Vermont ... ₩ doz $1.50, dis 25&10 %
Red, Polished and Varnished ... ₩ doz $1.50, dis 10 %
Saw Rods ... $10 list dis 10&10 %

Saw Sets.
Stillman's Genuine ... ₩ doz $5.00 and $7.75, dis 40&5 %
Stillman's Imitation ... ₩ doz $3.25 and $5.25, dis 40&5 %
Common Lever ... ₩ doz $2.00, dis 40&5 %
Leach's ... No. 0, $8.00; No. 1, $15.00, dis 15 %
Nash's ... dis 20&10 @ 20&10&5 %
Hammer, Hotchkiss ... $5.50, dis 10 %
Hammer, Bemis & Call Co.'s new Patent ... dis 30&5 %
Bemis & Call Co.'s Lever and Spring Hammer.dis 30&5 %
Bemis & Call Co.'s Plate ... dis 10 %
Bemis & Call Co.'s Cross Cut ... dis 12½ %
Aiken's Genuine ... $13.00, dis 50&10 %
Aiken's Imitation ... $7.00, dis 55&5 %
Hart's Patent Lever ... dis 20 %
Disston's, Star, $9. No. 15 Hammer, $5.50 ... dis 20&10 %
Morrill's..No. 1, $15.00; Nos. 3 and 4, $24. ... dis 40&10 @ 40&10&5 %
Croissant (Keller) No. 1, $15.00; No. 2, $24.00, dis 33⅓&10 %
Boynton's No. 1, $12 ₩ doz; No. 2, $10 ... dis 25 %

Scales.
Hatch, Counter, No. 171 ... ₩ doz $42.00, dis 50&10 %
Hatch, Tea, No. 161 ... ₩ doz $15.00, dis 50&10 %
Union Platform, Plain ... $2.15 @ 2.20
Union Platform, Striped ... $2.30 @ 2.40
Chatillon's Grocers ... dis 40 %
Chatillon's Eureka ... dis 25 %
Chatillon's Family Favorite ... dis 30 %
Family Universal, ₩ doz, 12 ℔, $30.00; 24 ℔, $36.00, net
Family, Turnbull's ... dis 30@30&10 %
Scale Beams, List of Jan. 12, 1882..dis 60&5 @ 60&10 %
Scale Beams, Custer ... dis 25 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.) $6.50, dis 20&10 %
Box, 1 Handle ... ₩ doz $4.00, dis 10 %
Box, 2 Handle ... ₩ doz $6.00, dis 10 %
Defiance Box and Ship ... dis 20&10 %
Foot ... dis 50&10 %
Ship, Common ... ₩ doz $3.50 net
Ship, Providence Tool Co. ... dis 10 %

Screen Corners.
Porter's Pat. Window and Door Frame ... dis 33⅓ %
Screen Corner Irons, Warner's ... dis 33⅓ %

Screw Drivers.
Douglas Mfg Co ... dis 20&10&10 %
Disston's ... dis 45&10 %
Disston's Patent Excelsior ... dis 45&10 %
Buck Bros ... dis 30 %
Stanley R. & L. Co.'s Varnished Handles ... dis 60&10 %
Stanley R. & L. Co.'s Black Handles ... dis 50&10 %
Sargent & Co.'s Nos. 1 & 20 Forged Blade ... dis 70&10 %
Sargent & Co.'s Nos. 40 & 30, Cast Steel.dis 55&10&10 %
Sargent & Co.'s No. 60, Round Blade ... dis 60&10&10 %
Knapp & Cowles' No. 1 ... dis 60&10&10 %
Knapp & Cowles' No. 1 Extra ... dis 50&10 %
Knapp & Cowles' No. 00 & 4 ... dis 40 %
Sets Interchangeable ... ₩ doz $18.00, dis 25 %
Champion ... dis 25 %
Clark's Patent ... dis 20&10 %
Crawford's Adjustable ... dis 30 %
Knapp & Cowles' Screw-Driver Bitts ... ₩ doz 90¢
Eilrich's Socket and Ratchet ... dis 25 %
Allard's Spiral, new list ... dis 25 %

Screws.
Am. Screw Co.'s list, Jan. 1, 1885:
Flat Head Iron ... dis 80 %
Round Head Iron ... dis 75&10 %
Note.—On above Screws an extra discount of 10 % on ¾ inch and smaller is given.
Flat Head Brass ... dis 75&10 %
Round Head Brass ... dis 75 %
Russell & Erwin list, April 1, 1885:
Flat Head Iron ... dis 85&10 %
Round Head Iron ... dis 85 %
Flat Head Brass ... dis 85 %
Round Head Brass ... d 83⅓ %
Brass and Silver Capped Screws ... dis 40 %
Lag or Coach ... dis 75&10 @ 80 %
Coach, Patent Gimlet Point ... dis 75 @ 75&5 %
Bed ... dis 35 %
Machine, Flat Head, Iron ... dis 60 %
Machine, Round Head, Iron ... dis 55 %
Bench, Iron ... dis 55&10 @ 55&10&10 %
Bench, Wood, Beech ... ₩ doz $2.25
Bench, Wood, Hickory ... dis 20&10 %
Hand. Wood ... dis 25&10 @ 25&10&5 %
Hand Rail, Sargent's ... dis 66⅔&10 %
Hand Rail, Humason, Beckley & Co.'s ... dis 70 %
Hand Rail, Am. Screw Co ... dis 70 %

Scroll Saws.—Lester, complete, $10.00 ... dis 25 %
Rogers, complete, $4.00 ... dis 25 %

Scythes.
Blood's, Grass ... dis $3 ₩ doz
Blood's, Grain ... dis $4.50 ₩ doz
Other brands ... dis 33⅓ @ 40 %

Scythe Snaths ... dis 40&5&2 %

Shears and Scissors.
American (Cast) Iron ... dis 75&10 @ 80 %
Pruning ... See Pruning Hooks and Shears
Barnard's Lamp Trimmers ... ₩ doz $3.75
Tinners' ... dis 20&2 %
Seymour's, List, Dec., 1881 ... dis 60&10&5 %
Heinsch's, List, Dec., 1881 ... dis 60&10 %
Heinsch's Tailor's Shears ... dis 33⅓ %
First quality C. S. Trimmers ... dis 80 %
Second quality C. S. Trimmers.dis 80&10 @ 80&10&5 %
Acme Cast Shears ... dis 10&10 %
Diamond Cast Shears ... dis 10 %
Clipper ... dis 10&10 %
Victor Cast Shears ... dis 75&10 %
Howe Bros. & Hulbert, Solid Forged Steel ... dis 40 %

Sheaves.
Sliding Door M. W. & Co., list ... dis 66⅔&5&2 %
Sliding Door, R. & E., list ... dis 60&10&2 %
Sliding Door, Corbin's list ... dis 60&10&2 %
Sliding Door, Patent Roller ... dis 60&10&2 %
Sliding Door, Patent Roller, Hatfield's ... dis 70 %
Sliding Door, Russell's Anti-Friction ... dis 60&10&2 %
Sliding Door, Moore's Anti-Friction ... dis 60 %
Sliding Shutter, R. & E. list ... dis 60&10&2 %
Sliding Shutter, Sargent's list ... dis 66⅔&10 %
Sliding Shutter, Reading list ... dis 66⅔&10 %
Moore's Anti-Friction (Hanging) ... New list, dis 25 %

Ship Tools.—L. & I. J. White ... dis 20&5 %
Albertson Mfg. Co ... dis 25 %

Shovels and Spades.
Ames' Shovels, Spades, &c., Ames' brands ... dis 20 %
Some special brands of Ames' goods ... dis 20&10 %
Griffith's Black Iron ... dis 50&10 %
Griffith's Steel ... dis 60 %
Griffith's Solid Cast Steel R. R. Goods ... dis 20 %
Old Colony ... dis 15 %
Groom Shovel Co ... dis 20 @ 20&5 %
Hussey, Binns & Co ... dis 20 @ 20&5 %
Lehigh Mfg. Co ... dis 50&10 %
Payne Pettebone & Son, list Jan. 2, 1882 ... dis 50&5 %
R. T. Pettebone, Pat. Shovels, new list ... dis 50 %
R. T. Pettebone, Pat. Scoops, new list ... dis 20 %
Remington's (Lowman's Patent) ... dis 30 @ 30&10 %
Rowland's, Black Iron ... dis 50&10 %
Rowland's Steel ... dis 60&5 @ 60&10 %

Shovels and Tongs.
Iron and Brass Head, R. & E. ..dis 60&10&2@60&10&5 %
Iron and Brass Head, P. S. &W.dis 60&10&2@60&10&5 %

Sieves.
Buffalo Metallic, S. S. & Co., new list ... dis 33⅓&2 %
Barler's Flour Sifters ... ₩ doz $2 50

Slates.
Square Frames, by case ... dis 45 %

Spoke Shaves.
Iron ... dis 45 %
Wood ... dis 30 %
Bailey's (Stanley R. & L. Co.) ... dis 40&10 %
Stearns' ... dis 30&10 %

Spoke Trimmers.
Bonney's ... ₩ doz $10.00, dis 50 %
Stearns' ... ₩ doz $9.00, dis 20&10 %
Ives' ... No. 1, $15.00; No. 2, $12.00 ₩ doz, dis 55&10 %
Douglass' ... ₩ doz $9.00, dis 20 %

Spoons.
Basting, Central Stamping Co.'s list ... dis 33⅓&2 %
Solid Table and Tea, Central Stamping Company's list ... dis 33⅓&2 %
Buffalo, S. S. & Co ... dis 50&10 %
Britannia ... dis 60&10 %
Meriden Brit. Co., Rogers ... dis 50&5 %
Wm. Rogers Mfg. Co ... dis 50&10 %
Holmes, Booth & Haydens ... dis 50&10@60 %
Holmes & Edwards Silver Co ... dis 50&10@60 %
German Silver ... dis 50 %
Cast Steel, Silver Plated ... dis 40 %
H. & E. Silver Co. Steel Silver-Plated Teas, $15; Tables, $30 ... dis 50 @ 50&10 %
Tin (Cowles Hdw. Co) ... dis 10 %
Tin (Cowles Hdw. Co.), case lots ... dis 20 %

Squares.
Steel and Iron }
Nickel Plated } dis 60&10 & 10@70 %
Try Square and T Bevels ... dis 60&10 %
Disston's Try Square and T Bevels ... dis 45&10 %
Winterbottom's Try and Miter ... dis 20&10 %

Steelyards ... dis 40&10 @ 50 %

Stocks and Dies ... dis 5&10 %
"Lightning" Screw Plate ... dis 10 @ 10&10 %

Stone.
Hindostan No. 1, 6¢; Ax, 8¢; Slips, 10¢ ... dis 40 %
Sand Stone ... ₩ ℔, 5¢, dis 33⅓&10 %
Washita Stone, Extra ... ₩ ℔, 16¢
Washita Stone ... No. 1, ₩ ℔, 13½¢
Washita Stone ... No. 2 ₩ ℔, 10¢
Washita Stone Slips ... No. 1 ₩ ℔, 26¢
Arkansas Stone, No. 1, 4 to 6 in ... ₩ ℔, $1.35, dis 10 %
Arkansas Stone, No. 1, 6 to 9 in ... ₩ ℔, $2.00, dis 10 %
Turkey Oil Stone (Chase) ... 4 to 8 in., ₩ ℔, 60¢, dis 10 %
Turkey Slips (Chase) ... $1.75 ₩ ℔, dis 10 %
Lake Superior (Chase) ... ₩ ℔, 16¢, dis 10 %
Lake Superior Slips (Chase) ... ₩ ℔, 30¢, dis 10 %
Grindstones, Family, Loring's ... dis 10 %

Stove Boards.
Buffalo Zinc, S. S. & Co ... dis 50 %

Stove Polish.
Joseph Dixon's ... ₩ gro $6.00, dis 10 %
Gem ... ₩ gro $4.50, dis 10 %
Gold Medal ... ₩ gro $6.00, dis 25 %
"Mirror" ... ₩ gro $6.00, dis — %
Lustro ... ₩ gro $4.75 net
Ruby ... ₩ gro $3.75 net
Rising Sun ... ₩ gro $5.75 net
Dixon's Plumbago ... ₩ ℔ 8¢ net
Boynton's Noon Day, ₩ gro, No. 1, large, $5.50; No. 2 small, $3; No. 3, medium, $4.

Tacks, Brads, &c.
List, Sept. 1, 1882
American Iron Carpet Tacks, all kinds ... dis 65 %
Steel Carpet Tacks, all kinds ... dis 60 %
Swedes Iron Carpet Tacks, all kinds ... dis 60 %
Swedes Iron Tacks ... dis 60 %
Swedes Iron Upholsterers' Tacks ... dis 60 %
Tinned Swedes Iron Tacks ... dis 60 %
Tinned Swedes Iron Upholsterers' Tacks ... dis 60 %
American Iron Cut Tacks ... dis 60 %
Copper Tacks ... dis 55 %
Copper Finishing and Trunk Nails ... dis 55 %
Cigar Box Nails ... dis 50 %
Finishing Nails ... dis 50 %
Hungarian Nails and Miners' Tacks ... dis 45 %
Gimp and Lace Tacks ... dis 60 %
Tinned Gimp and Lace Tacks ... dis 60 %
Trunk and Clout Nails ... dis 40 %
Tinned Trunk and Clout Nails ... dis 40 %
Basket Nails ... dis 40 %
Chair Nails ... dis 40 %
Common and Patent Brads ... dis 50 %
Tinned Capped Trunk Nails ... dis 80 %
Looking-Glass Tacks ... dis 30 %
Picture-Frame Points ... dis 30 %
Leathered Carpet Tacks ... dis 30 %
Brush Tacks ... dis 30 %
} Extra 10&2 % for cash.
Shoe Finders' ... List July 1, 1885
Lining and Saddle Nails ... List June 19, 1885
Double-pointed Tacks ... dis 75&10 @ 75&10&5 %
Wire Carpet Nails ... dis 50 %
Wire Carpet Nails, R. & E. Mfg. Co ... dis 40&10 %
Steel Wire Brads, R. & E. Mfg. Co ... dis 40&10 %

Tap Borers.
Common and Ring ... dis 20&10 %
Ives' Tap Borers ... Nos. 1, 2, 4—dis 15&10 %
Ives' Tap Borers ... Nos. 13, 14—dis 25&10 %
Enterprise Mfg. Co ... dis 20&10 %
Clark's ... dis 33⅓&35 %

Tapes, Measuring.
American ... dis 25&10 %
Spring ... dis 40 %
Chesterman's ... Regular list dis 25 @ 30 %

Thermometers.—Tin Case ... dis 80 @ 80&5 %

Tinners' Shears, &c.
Shears and Snips (P. S. & W.) ... dis 20&2 %
Punches—See Punches.
Snips, J Mallinson & Co ... dis 33⅓ %

Tinware.
Stamped, Central Stamping Co.'s list ... dis 33⅓&2 %
Japanned, Central Stamping Co.'s list ... dis 33⅓&2 %
Pieced, Central Stamping Co ... dis 33⅓&2 %
Pieced, S. S. & Co ... dis 60 %
Japanned, S. S. & Co ... dis 25&10 %
Stamped, S. S. & Co., new list ... dis 33⅓&2 %

Transom Lifters.
Wollensak's Patent Iron Bronzed ... dis 50 %
Reiher, Imp. Lifter, list, Oct., 1883 ... dis 45&10 %
Excelsior ... dis 50&10&2 %
Shaw's ... dis 45&10 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion) ... dis 20&10 %
Wood Bottom ... ₩ doz $5.00 @ $5.25
All Iron ... ₩ doz $4.25
Nashua Lock Co.'s ... ₩ doz $18.00 dis 50@55 %
Wilson's ... dis 55 %
Clipper (Sargent & Co.) ... ₩ doz $24, dis 50&10&10 %
Acme ... ₩ doz $20.00, dis 40 %

Traps.
Game, Newhouse ... dis 35 %
Game, Oneida Pattern ... dis 60&10&10 %
Game, Blake's Patent ... dis 40&10 %
Mouse, Wood, Choker ... ₩ doz holes, 15¢
Mouse, Round Wire ... ₩ doz $1.50, dis 10 %
Mouse, Cage, Wire ... ₩ doz $2.50, dis 10 %
Mouse, "Catch-'em-alive" ... ₩ doz $2.50, dis 15 %
Mouse, "Bonanza" ... ₩ gross $10 net
Mouse, Delusion ... ₩ gross $18.00, dis 15 %
Rat, "Decoy" ... ₩ doz $10.00, dis 10

Trowels.
Lothrops' Brick and Plastering ... dis 20&10 %
Reed's Brick and Plastering ... dis 15 %
Disston's Brick and Plastering ... dis 20&10 %
Peace's Plastering ... dis 25 %
Clement & Maynard's ... dis 20 %
Rose's Brick ... dis 15 %
Brade's Brick ... dis 25 %
Worrall's Brick and Plastering ... dis 20 %
Garden ... dis 70 %

Triers.
Butter and Cheese ... dis 25 %

Trucks, Warehouse, &c.
Penfield Block Co.'s list, 1882 ... dis 40 %

Twine.

		BC.	B.
No. 9, Flax Twine,	¼ and ½ ℔ Balls	24¢	31¢
No. 12, " "	¼ and ½ "	22¢	24¢
No. 18, " "	¼ and ½ "	20¢	22¢
No. 24, " "	¼ and ½ "	20¢	22¢
No. 36, " "	¼ and ½ "	19¢	21¢
No. 264, Mattrass,	¼ and ½ "	50¢	

Chalk Line, Cotton, ½ ℔ Balls ... 28¢
Mason Line, Linen, ½ " ... 60¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine), 14½¢; 3-Ply Hemp, 1 ℔ Balls, 15¢; 3-Ply Hemp, 1½ ℔ Balls, 13¢; Cotton Wrapping, 5 Balls to ℔, 14¢ @ 20¢; 2, 3, 4 and 5 Ply Jute, ½ ℔ Balls, 11¢; Wool, 6¢ @ 6½¢; Paper, 10¢; Cotton Mops—6, 9, 12 and 15 ℔ to doz., 17¢

Vises.
Solid Box ... dis 50&10 @ 60 %
Parallel, Fisher & Norris Double Screw ... dis 15&10 %
Parallel, Stephens' ... dis 25 %
Parallel, Parker's ... dis 20 @ 25 %
Parallel, Wilson's ... dis 55 %
Parallel, Howard's ... dis 40 %
Parallel, Bonney's ... dis 40 %
Parallel, Merritt's ... dis 15@20 %
Parallel, Sargent's ... dis 60&10 %
Parallel, Backus and Union ... dis 40 %
Parallel, Double Screw Leg ... dis 15&10 %
Parallel Prentiss ... dis 20@25 %
Parallel, Simpson's Adjustable ... dis 40
Saw Filers, Bonney's, Nos. 2 & 3 .. ₩ doz $15.00, dis 40 %
Saw Filers, Stearn's ... dis 40 %
Saw Filers Hopkins' ... ₩ doz $17.50, dis 10 %
Saw Filers, Reading ... dis 40&10 %
Saw Filers, Wentworth ... dis 20&10 %
Cowell Hand Vises ... dis 20 %
Richardson's Vise and Anvil ... dis 25 %

Washer Cutters.
Smith's Patent ... ₩ doz $12.00, dis 20&10&10
Johnson's ... ₩ doz $11.00, dis 33⅓ %
Penny's ... ₩ doz Pol. $14; Jap'd, $16 .. dis 55 %
Appleton's ... ₩ doz $16.00, dis 60&10 %
Bonney's ... dis 30&10

Washers.—See Nuts and Washers

Well Wheels—8 in., $1.85; 10 in., $2.15; 12 in., $2.90

Wire
Brass and Copper, new list, Jan. 18, '84 dis 30@30&5 %
Market, Bright and Annealed, No. 0 to 18.dis 70@70&7½ %
Market, Coppered ... dis 65 @ 65&7½ %
Market, Galvanized ... dis 60 @ 60&5 %
Market, Tinned, Tinned list ... dis 60 @ 60&5 %
Stone, Bright and Annealed Nos. 19 to 26..dis 70@70&5 %
Stone, Bright and Annealed Nos. 27 to 36 dis 75@75&5 %
Stone, Galvanized, Nos. 19 to 30 ... dis 55@55&5 %
Stone, Tinned, Tinned list ... dis 60@60&5 %
Tinned Broom Wire ... dis 65@65&5 %
Cast Steel Wire ... dis 55@55&5 %
Annealed Fence, Nos. 8 & 9 ... dis 70@70&5 %
Annealed Grape, Nos. 10 to 14 ... dis 70@70&5 %
Fence Staples ... ₩ ℔ 3¼ @ 3½¢
Fence Staples, Galvanized ... ₩ ℔ 4¼ @ 5¢
Stubs' Steel Wire ... $6.00 to £, dis 30 %
Barb Fence ... See Trade Report
Barb Wire Safety Guards ... ₩ 1000 $9.00, dis 25 %
Wire on Spools ... dis 65 %
Steel Music Wire, Nos. 7 to 30 ... 55¢ ₩ ℔
Picture Wire ... dis 60&10 %
Wire Clothes Lines. See Lines.
Wire Cloth, green, drab and black, ₩ 100 sq. ft. .. $2

Wrenches.—American Adjustable ... dis 45 %
Baxter's Adjustable "S" ... dis 33⅓ %
Baxter's Diagonal ... dis 35&10 %
Coes' Genuine ... cash in 10 days, dis 60&3 %
Coes' "Mechanics'" ... dis 60&10&3 %
Coes' Pattern, Malleable ... dis 80&5 %
Coes' Pattern, Wrought ... dis 75&10&5 @ 80 %
Girard Standard ... dis 70 @ 70&5 %
Girard Agricultural ... dis 70&10&5 %
Bemis & Call's Patent Combination ... dis 30&5 %
Bemis & Call's Merrick's Pattern ... dis 35 %
Bemis & Call's Brigg's Pattern ... dis 25 %
Bemis & Call's Cylinder or Gas Pipe ... dis 40&5 %
Bemis & Call's No. 3 Pipe ... dis 35&5 %
Aiken's Pocket (Bright) ... $6.00, dis 50&10 %
The Favorite Pocket (Bright) ... ₩ doz $4.00, dis 40 %
Webster's Patent Combination ... dis 25 %
Boardman's ... dis 25@25&10 %
"Always Ready" ... dis 25&5 %
Alligator ... dis 40&10 %
Donohue's Engineer ... dis 25 %
Acme, Bright ... dis 60&3 %
Acme, Nickeled ... dis 45 %
Acme, Bicycle, 4½ in ... dis 45 %

Wringers.

	Per doz.
Novelty for Common Tubs, No. 2, 10-inch	$30.00
Novelty, for Common Tubs, No. 3, 11-inch	34.50
Excelsior, for Stationary Tubs, No. E, 10-inch	39.00
Excelsior, for Stationary Tubs, No. F, 11-inch	43.50
Excelsior, with Folding Bench, No. A, 10-inch	48.00
Excelsior, with Folding Bench, No. B, 11-inch	52.50
Universal, No. 2½	30.00
Universal, No. 2	33.00
Universal, No. 1¼	34.50
Universal, No. 1½	39.00
Universal, No. 1	57.00
Universal, for Set Tubs, A 2½	39.00
Universal, for Set Tubs, E 1½	48.00
Universal, for Set Tubs, C 1	66.00
Adams & Co. No. 8	30.00
Peerless No. 2½	30.00
Peerless No. 3½	34.50
No. 99 Improved 2½	30.00
"Metropolitan," No. 2	33.00
"Metropolitan," No. 2½	30.00
Leader	28.00
Advance	30.00

} dis $3 ₩ doz

Wrought Staples, Hooks, &c.—See Hooks.

WHOLESALE METAL PRICES, July 29, 1885.

METALS.

IRON.—DUTY: Bars, 8-10¢ to 1 1-10¢ ℔ lb; provided that no Bar iron shall pay a less rate of duty than 35 %. Sheet, 1 1-0¢ to 1 5-10¢ ℔ lb. Band, Hoop and Scroll, 1¢ to 1 4-10¢ ℔ lb. Railroad Bars weighing more than 25 lb ℔ yard, 7-10¢ of 1¢ ℔ lb.

Standard American Pig Iron.

Foundry No. 1 X	℔ ton	$17.50 @ 18.50
Foundry No. 2 X	℔ ton	16.00 @ 17.00
Gray Forge	℔ ton	15.25 @ 16.00

No. 1 Scotch Pig Iron.

Carnbroe	℔ ton	19.00 @ 19.50
Coltness	℔ ton	20.00 @ 20.50
Shotts	℔ ton	20.00 @ 20.50
Glengarnock	℔ ton	19.00 @ 19.50
Gartsherrie	℔ ton	20.00 @ 20.50
Langloan	℔ ton	20.50 @ 21.00
Summerlee	℔ ton	19.50 @ 20.00
Dalmellington	℔ ton	18.50 @ 19.00
Eglinton	℔ ton	18.00 @ 18.50
Clyde	℔ ton	19.00 @ .....

Rails.

Steel, at Eastern mills	℔ ton	..... @ 27.00
O'd Rails, Ts	℔ ton	16.00 @ 16.50

Scrap.

Wrought, ℔ ton, from yard ..... 18.00 @ 18.50

Bar Iron from Store.

Common Iron: ¾ to 1 in. round and square; 1 to 6 in. x ⅜ to 1 in	℔ lb	1.6 @ 1.75¢
Refined Iron: ¾ to 2 in. round and square; 1 to 6 in. x ¾ to 1 in	℔ lb	1.85 @ 2.3¢
1 to 6 in. x ¼ and 5-16	℔ lb	1.9 @ 2.4¢
Rods—⅜ and 11-16 round and sq.	℔ lb	1.7 @ 2.3¢
Bands—1 to 6x3-16 to No. 12	℔ lb	2 @ 2.5¢
'Burden's Best" Iron, base price	℔ lb	2.9¢
Burden's "H. B. & S." Iron, base price	℔ lb	2.5¢
Norway Nail Rods		5 @ 6¢

Sheet Iron from Store.

		Common American.	R. G. Cleaned.
Nos. 10 to 16	℔ lb	2.70 @ 3 ¢	3¼¢
17 to 20	℔ lb	3 @	3¼¢
21 to 24	℔ lb	3 @	3¼¢
25 and 26	℔ lb	3 @ 3.12½¢	3¼¢
27	℔ lb	3.25 @	3¾¢
28	℔ lb	3.25 @ 3.37½¢	4 ¢

		B. B.	20 qual.
Galvanized, 10 to 20	℔ lb	5 ¢	4½¢
Galvanized, 21 to 24	℔ lb	5½¢	5 ¢
Galvanized, 25 to 26	℔ lb	6 ¢	5½¢
Galvanized, 27	℔ lb	6½¢	6 ¢
Galvanized, 28	℔ lb	7 ¢	6½¢
American Russia	℔ lb	A, 10¢	B, 9¢
Russia	℔ lb	10½¢ @ 11½¢	
American Cold Rolled B. B.	℔ lb	5 ¢ @ 7 ¢	

Iron Wire.—(*See Wire.*)

STEEL.—DUTY. Ingots, Bars, Sheets, &c., valued at 4¢ ℔ lb or less, 45 % ad. val.; valued above 4¢ and not above 7¢ ℔ lb, 2¢ ℔ lb; valued above 7¢ and not above 10¢ ℔ lb, 2¾¢ ℔ lb; valued above 10¢ ℔ lb, 3½¢ ℔ lb. *Extras.*—Steel Bars, Rods, &c., cold hammered or polished, in any way in addition to ordinary hot rolling, 1½¢ ℔ lb in addition to above; Steel Circular Saw Plates, 1¢ ℔ lb in addition to the above.

American Cast Steel.

For American Steel, see Pittsburgh quotations.

English Steel.

Best Cast	℔ lb	15½¢
Extra Cast	℔ lb	16½ @ 17½¢
Circular Saw Plates	℔ lb	14½¢
Round Machinery, Cast	℔ lb	10½¢
Swaged, Cast	℔ lb	16½¢
Best Double Shear	℔ lb	15½¢
Blister, 1st quality	℔ lb	14 ¢
German Steel, Best	℔ lb	10 ¢
2d quality	℔ lb	9 ¢
3d quality	℔ lb	8 ¢
Sheet Cast Steel, 1st quality	℔ lb	15½¢
2d quality	℔ lb	14½¢
3d quality	℔ lb	12½¢

TIN.—DUTY Plates, Sheets, Tagger and Terne, 1¢ ℔ lb; Bars, Block and Pigs free.

Banca	℔ lb	..... @ 24 ¢
Straits	℔ lb	23½¢ @ 24½¢
English	℔ lb	23 ¢ @ 23½¢
Bar	℔ lb	24½¢ @ 25 ¢

Charcoal Tin Plates.

I C 10x14 225 sheets	℔ box	$5.00 @	7.00
I C 12x12 225 sheets	"	5.00 @	7.00
I C 20x28, 112 "	"	10.00 @	14.25
I X 10x14 225 sheets	"	6.25 @	8.75
I X 12x12 225 sheets	"	6.25 @	8.75
I X 14x20, 112 "	"	6.25 @	8.75
I C 12½x17 100 "	"	5.00 @	5.50
I X 12½x17, 100 "	"	6.25 @	7.00
For each additional X add	"	1.25 @	2.00

Coke Tin Plates.

	Best.	Ordinary	
I C 10x14 }	$4.75	$4.02½ @	...
I C 14x20 }			
I C 12x12	4.75	4.50 @	....
I C 10x30, gutters, 225 sheets	5.00		7.25
I C 20x28, 112 sheets	....		10.25

Terne Plates.

	Prime Char.	2d. quality	Coke.
I C 14x20 M. F.	$7	.....	....
I C 14x20 Old Process	.....	.....	$6.75
I C 20x28 "	.....	.....	13.75
I C 14x20,	$4.75 @ 5.00		
I X 14x20	6.50 @ 6.87½		
I C 20x28	9 25 @ 9.75	8.75 8.50	@ 8.62½
I X 20x28	12.75 @ 14.50		
I C 20x200	13.50 @		

Tin Boiler Plates.

IXX 14x26, 2 sheets for No. 7, 112 sheets	@	$12.00
IXX 14x28, 2 " " No. 8, "	@	13.00
IXX 14x31, 2 " " No. 9, "	@	15.00

COPPER.—DUTY: Pig, Bar and Ingot, 4¢: Old Copper, 3¢ ℔ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot, Lake	℔ lb	11½¢ @ 11¾¢
Ingot, Baltimore	"	10¾¢ @ 11 ¢
Ingot Anchor	"	11 ¢ @ 11¼¢
Braziers' Copper, ordinary sizes, 16 oz. ℔ sq. ft. and over		@ 17 ¢
Braziers' Copper, ordinary sizes, under 16 oz. and over 12 oz. ℔ sq. ft.	"	@ 18 ¢
Braziers' Copper, 10 oz. and 12 oz. ℔ sq. ft.	"	@ 20 ¢
Lighter than 10 oz. ℔ sq. ft.	"	@ 22 ¢
Circles less than 84 in. in diam.	"	@ 20 ¢
" 84 in. diam. and over	"	@ 23 ¢
Segment and Pattern Sheets	"	@ 20 ¢
Locomotive Fire-Box Sheets	"	@ 17 ¢
Sheathing Copper, over 12 oz. ℔ sq. ft.	"	@ 16 ¢
Bolt Copper	"	@ 18 ¢
Copper Bottoms	"	@ 18 ¢
Nickel-Plated Sheathing	"	@ 35 ¢
" " for boilers	"	@ 37 ¢
Plating extra	" 25 ¢	@ 37 ¢
Flat Copper Boiler Bottoms or Pit Bottoms, cut to special sizes	"	@ 21 ¢

Tinning.

14x48, by the case	℔ sheet,	8¢
4x48, less than case	"	8¢

For tinning both sides, double the above amount.

O'Neill's Patent Planished Copper.—Net.

14x48		
14 and 16 oz. and heavier	30¢	By the case, ℔ lb 29¢
12 oz. and lighter	33¢	" " " 32¢

Boiler Sizes.

7 in., 14x52. 8 in., 14x56. 9 in., 14x60.

14 and 16 oz. and heavier	32¢	By the case, ℔ lb 31¢

(And all sizes not over 20 in. wide.)

24x48 and 30x60.

14 and 16 oz. and heavier		℔ lb 34¢
12 oz		" 37¢

Copper Wire.—(*See Wire.*)

Sheathing Metal.

Yellow Sheathing Metal, ℔ lb ..... 20 @ ...

BRASS AND GERMAN SILVER.

Brown & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.

Brass Manufacturers' Price List, January 17, 1884.. dis 20 @ 30 %

LEAD.—DUTY: Pig, $2 ℔ 100 lb; Old Lead, 2¢ ℔ lb; Pipe and Sheet, 3¢ ℔ lb.

American	4½ @ 4¾¢
Bar	4¾ @ 5 ¢
Pipe	5¾¢
Block Tin Pipe	40¢
Tin Lined Pipe	15¢, dis 20 %
Sheet	6¾¢, dis 20 %
Shot	Drop, 6¢; Buck, 7¢
Chilled Shot	7¢

ANTIMONY.

Hallett's	℔ lb 10 @	10¼¢
Cookson	" 10¼ @	10¾¢

SPELTER—Duty: Pigs, Bars and Plates, $1.50 ℔ 100 lbs.

American, cash	4⅝ ¢ @ 5¢
Bergenport	9¢

ZINC—Duty: Pig or Block, $1.50 ℔ 100 lbs. Sheet, 2½¢ ℔ lb.

600 lb casks	5 @ 5.2¢
Zinc.—Open	5¾ @ 6¼¢
Zinc Tubing	dis. 10 @ 20 %

Zinc Tubing—Dis. 25 %.

Plain	.27
Fancy	.33
Scotch and Extra Patterns	.36

BABBITT METAL.

N. P. U	℔ lb	6 @ 7¢
X		10¢
X X		15¢
J. B		20¢

WIRE.

Market Wire.—Put up in 63 lb bundles.

Nos. 00 to 9,	10, 11,	12,	13, 14,	15, 16,	17,	18.
	10	11	11¾ 12¾	14	15	16
Bright Market Wire						dis 70 %
" Charcoal						dis 50 %
" Bale Wire, Nos. 7 to 12						dis 65 %
Annealed Market Wire, Fence Wire, Nos. 8 and 9; Grape Wire, Nos. 10 to 14						dis 70 %
Coppered Market Wire						dis. 65 %
" Bale Wire, Nos. 7 to 12						dis. 60 %
Galvanized Market Wire, Fence Wire						dis 60 %

Stone or Weaving Wire.

Nos.	16	17	18	19	20	21	22	23	24	25	26
Cents	14	15	16	19	20	21	22	23	24	25	26
Nos.	27	28	29	30	31	32	33	34	35	36	..
Cents	28	29	30	32	33	35	37	40	45	55	..

Nos. 16 to 18	dis. 70 @ 70 %
" 19 to 26	" 70 %
" 27 to 36	" 75 @ 75 %
Galvanized Stone Wire	" 55 %

Steel Wire.

Cast Steel, Steel Wire list ..... dis. 55 %

Brass and Copper Wire.

Old English Gauge the Standard.—Dis 20 @ 30.

	Common High Brass	Low Brass	Gilding Bronze and Copper.
All Nos. to No. 16, inclusive	$0.22	$0.26	$0.30
No. 17 and 18	.23	.27	.31
" 19 and 20	.24	.28	.32
" 21	.25	.29	.33
" 22	.26	.30	.34
" 23	.28	.32	.36
" 24	.30	.34	.38
" 25	.32	.36	.40
" 26	.35	.39	.43
" 27	.38	.42	.46
" 28	.42	.46	.51
" 29	.45	.49	.54
" 30	.48	.52	.62
" 31	.51	.55	.67
" 32	.55	.59	.73
" 33	.59	.63	.82
" 34	.64	.68	.92
" 35	.70	.74	1.30
" 36	.76	.80	1.50
" 37	1.00	1.04	1.79
" 38	1.30	1.34	2.00
" 39	2.00	2.00	3.25
" 40	2.60	2.60	5.75

Spring Wire, 2 cents per pound advance. Whitened Wire, 3 cents per pound advance. Flat, Square and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance on Round Wire. Spooling on one-pound Spools, 12 cents per pound extra. Spooling on ten-pound Spools or more, 2 cents per pound extra.

MISCELLANEOUS TINNERS' STOCK.

Solder.

½ & ⅓. Warranted	14⅛ @	14¾¢
Extra		13½¢
No. 1 Refined	11½ @	12 ¢
No. 2 "	11¾ @	12¼¢
Extra wiping		11 ¢

Rivets.

Iron and Tinned, new list, Dec. 10, 1881	dis. 40 %
In bulk, new list, Dec. 10, 1881	dis. 40 %
Copper Rivets and Burrs	dis. 50&10@60 %

Nos..	7	8	9	10	11	12	13	14	1
℔ lb..	49¢	50¢	52¢	54¢	56¢	58¢	60¢	65¢	70¢

Stove Bolts.

American Screw Co.'s	dis. 65 %
R. B. & W.	dis.
R. & E. Mfg. Co.	dis 65 %

FRENCH GLASS.

Prices current per box of 50 square feet.
List, September 8, 1884.

Single Thick.

Sizes.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$9.50	$8.50	$7.50	$7.00
11 x 14 to 16 x 24	10.50	9.50	8.75	8.00
18 x 22 to 20 x 30	12.50	11.00	10.25	9.50
15 x 36 to 24 x 30	14.00	12.75	1 .00	
26 x 28 to 24 x 36	15.00	13.50	11.75	
26 x 36 to 26 x 44	16.00	14.50	12.25	
36 x 46 to 30 x 50	17.50	16.25	13.75	
30 x 52 to 30 x 54	19.00	17.00	15.00	
30 x 56 to 34 x 56	20.00	18.00	16.00	
34 x 58 to 34 x 60	22.00	20.00	18.00	
36 x 60 to 40 x 60	24.00	22.00	20.00	

Double Thick.

Sizes.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$12.00	$10.75	$10.00	$9.00
11 x 14 to 16 x 24	14.00	12.75	11.75	10.7
18 x 22 to 20 x 30	17.00	15.50	14.50	
15 x 36 to 24 x 30	18.50	17.00	15.00	
26 x 28 to 24 x 36	20.00	18.00	16.00	
26 x 36 to 26 x 44	21.25	19.75	17.00	
36 x 46 to 30 x 50	23.50	21.25	18.75	
30 x 52 to 30 x 54	24.50	22.25	20.25	
30 x 56 to 34 x 56	26.50	24.50	22.25	
34 x 58 to 34 x 60	29.00	27.00	25.00	
36 x 60 to 40 x 60	32.00	30.00	28.00	

Discount 70 @ 70 and 10 %.

Sizes above—$15 per box extra for every 5 inches. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket. An additional 10 per cent. will be charged for all Glass more than 40 inches wide.

PAPER STOCK, &c.

(*Dealers' Selling Prices.*)

	Cents	℔ lb.
White Shirt Cuttings, No. 1	6¾ @	7
" No. 2	5½ @	6
Mill Assorted Whites	5 @	5½
Unbleached Muslins	5½ @	6
City Whites, No. 1	4 @	4¼
City Whites, No. 2	2¾ @	3½
New Canton Flannels	5 @	5¼
New Seconds, light	3¾ @	4
" dark	3 @	3¼
Cotton Canvas	4½ @	4⅝
Linen Canvas No. 1	4 @	4¼
Seconds, City No. 1	1⅜ @	1½
Seconds, City No. 2	1 @	1¼
Colors, ℔ cwt	40 @	50
Manila Rope	3 @	3½
" Tarred	2½ @	2¾
Gunny Bagging, No. 1	1¾ @	1⅞
" No. 2	1½ @	1⅝
Kentucky Bagging	4 @	...
Burlap Bagging, No. 1	2 @	2¼
Tar Shakings	1⅜ @	1½
Hemp Twine Stock	3½ @	3¾
Hard White Shavings, No. 1	3½ @	3⅝
Soft White Shavings, No. 1	3 @	3¼
White Shavings, No. 2, Soft	2½ @	2⅝
Mixed Shavings, part White	2¼ @	2⅜
Ledger and Writing	2½ @	2⅝
Solid Stock	1⅞ @	2
Book Stock, No. 1, light	1 @	1½
Old Newspapers	1¼ @	1⅜
Pure Manilas	1⅝ @	...
Bogus Manilas and Hardwares, cwt	60 @	100
Commons, ℔ 100 lb	40 @	50
Binders' Board Cuttings	½ @	⅝
Straw Board Cuttings, ℔ cwt	60 @	70

PAINTS, OILS, &c.

Paints.

Black, Lamp—Coach Painters'	℔ lb	22 @ 24 ¢
" Ordinary		6¢
Black Ivory Drop, fair		12 @ 15¢
" " best		23¢
Black Paint, in oil	kegs, 8¢; assorted cans,	11¢
Blue, Prussian, fair to best		40 @ 55¢
" " in oil		45 @ 55¢
" Chinese dry		70¢
" Ultramarine		18 @ 30¢
Brown, Spanish		1¼¢
" Van Dyke		10 @ 12¢
Green Chrome		15 @ 23¢
" " in oil		14 @ 18 @ 25¢
" Paris	good, 20¢; best,	25¢
" " in oil	good, 30¢; best,	35¢
Iron Paint, Bright Red	℔ lb	2¼¢
" Brown	"	1½¢
" Purple	"	3¢
" Ground in oil, Bright Red	"	6¼¢
" " " Red	"	5½¢
" " " Brown	"	5½¢
" " " Purple	"	6¢
Mineral Paints		2 @ 4¢
Orange Mineral		10¢
Red Lead American		6½¢
" Venetian (Eng.) dry		$1.65 @ $1.70
" in oil	asst'd cans, 11¢; kegs,	8¢
" Indian Dry		9 @ 12¢
Rose Pink		10 @ 13
Sienna, American Raw, powdered		4¢
" Burnt, powdered		4½¢
" " in oil		10 @ 16 @ 20¢
" Raw		11 @ 15 @ 25¢
Umber, Burnt, powdered		4 @ 8¢
" " in oil		9 @ 12 @ 15¢
" Raw, powdered		4 @ 7½¢
" " in oil		9 @ 12 @ 15¢
Vermilion, Chinese		90¢
" English		56 @ 60¢
" American, Common		15¢
White Lead, American, pure dry		6¢
" " " in oil		6 @ 6¼¢
White Paris, English Prime		2 @ 2½¢
Yellow Ochre, French		$1.75
" " in oil	asst'd cans, 11¢; kegs,	8¢
" Vermont	in casks,	1½¢
Yellow Chrome		17 @ 27¢
" in oil		14 @ 18 @ 25¢
Zinc White, Amercan No. 1, dry		5 @ 6¢
" " No. 1, in oil		9¢
" French (Paris Dry)		5½ @ 7¼¢
" in oil		10 @ 11¢

Oils.

Bleached Whale, ℔ gal		57 @ 60¢
" Sperm		$1.02
" Elephant		68¢
Drilling		40¢
B. & R. Best Valvone Cylinder		70¢
Engine		50¢
Fish Oil, Pressed		32 @ 54¢
Lard, Prime Winter		58¢
" No. 1 Extra		52¢
Linseed, Raw, in casks and bbls		48 @ 49¢
" Boiled, " "		52 @ 53¢
" Western, " "		45 @ 46¢
Machinery		40¢
Miners' Oil		35 @ 45¢
Neatsfoot		80 @ 70¢
Signal		50¢
Tallow		58¢
West Virginia		11 @ 18¢

Sundries.

Asphaltum, Cuban		6¼ @ 9½
" Trinidad Refined	℔ ton,	$3.20 @ $3.25
Benzine	℔ gal.	8½ @ 9¢
Chalk		⅝ @ 1¢
" Block		¾¢
Crucibles No. 14 and upward, per number		3½¢
Dryers, Patent American	asst'd cans, 9¢; kegs,	7¢
Emery 300 lb kegs		4¢
" less than 300 lb		6¢
Frostings		40c
Glue, White	24 ℔	35¢
" Sheet		20¢
Glaziers' Points, Zinc, ℔ box		$5.00
Gum, Copal		36¢
" Damar		25¢
" Shellac, English		30¢
" " dark		25¢
Litharge		6½¢
Mineral Wool, ordinary, ℔ lb		1 @ 1½¢
" " extra		3 @ 3½¢
Pumice Stone, selected Lumps		4 @ 6¢
" " powdered		2½ @ 3½¢
Pine Tar, bbls		$2.25
Pitch		$1.70
Plumbago E. I. Po., ℔ lb		4 @ 6¢
" American, ℔ lb		6 @ 10¢
" Gun Powder Glazing, ℔ lb		10¢
" Shot Polish ℔ lb		10¢
Putty, in bladders		2½¢
" in bulk		1½ @ 2
Rosin—Common and Good—Strained		$1.35
" E & F		$1.47½ @ $1.60
" G & H		$1.75 @ $1.90
" I & K		$2.50 @ $3.00
" M & N		$3.75 @ $4.25
Spirits Turpentine, ℔ bbl		37 @ 38¢
Stove Polish, Dixon's	℔ gross	$5.50
" Rising Sun	"	5.50
" Gem	"	4.00
" Jet Black	"	3.00
Waste, No. 1 Cop		9¢
" No. 1 White Machine		8½¢
" No. 2 White Machine		8¼¢
" No. 1 Colored		6½¢
" No. 2 Colored		6¢
" Washed Machine		8½¢
Whiting, Spanish		¾¢

INDUSTRIAL ITEMS.

MAINE.

The McDonald Machine Company were recently organized in Portland, with a capital stock of $300,000. D. B. Bennett is president and George L. Warren treasurer. W. R. McDonald is the inventor of the engine and the friction ratchet drill which the company will manufacture. At Mr. Bennett's shop may be seen a foot-power which can be run up to 5000 revolutions a minute, and its principle is applied to the engine for the purpose of attaining a high rate of speed.

Active preparations are being made at the Saco Water Power Machine Shop, Biddeford, to resume work, and in a week a portion of the establishment will be running at full blast A large order that will consume four or five months in filling has been received, and work upon it will be commenced as soon as the material and machinery can be placed in readiness. The foundry will start up next Monday and the other departments as soon afterward as possible. About three-fourths of the full complement of hands will be given work.

NEW HAMPSHIRE.

The Concord Machine Works, at Concord, owned by John A. White, in addition to their mowing-machine work, are engaged on a considerable quantity of heavy machinery for railroads, and are also turning out a new style of band-saw resaws.

The Swamscot Machine Company, South Newmarket, are quite busy on boilers, engines and that class of work; also in their steam department. This company have fine facilities and carry on a large business in all their lines.

The Somersworth Machine Company, Great Falls, have recently enlarged their foundry at Rollinsford to nearly double its former capacity, and will soon put into it a 60-horse-power steam engine It is expected when these improvements are all complete that employment will be given to 175 hands.

MASSACHUSETTS.

The Cleveland Machine Works, Worcester, have recently received from one of the large worsted mills in New England an order for 60 of their new and improved spoolers that they have lately put upon the market. They are also quite busy in their other departments.

The Washburn & Moen Mfg. Co., Worcester, have just finished the erection of a new foundry building, 100 x 60, at Quinsigamond Village, for the manufacture of steel for their own use.

The Jarvis Engineering Company, 61 Oliver street, Boston, have received an order to set a new steel tubular boiler with the Jarvis patent furnace for Ara Cushman & Co., Auburn, Me.

The Suffolk Glass Works, in South Boston, have been sold to C. H. Jenkins, for $12,000, subject to a mortgage of $10,000 Mr. Jenkins is thought to have bought it for a new glass company, just formed.

Buchanan, Bolt & Co., of Holyoke, are pushing their wire works to their full capacity.

NEW YORK.

The striking stove molders of Rochester and their employers have agreed to settle their differences by arbitration.

The Johnsonville Axe Company Works, at Troy, were burned July 17. Loss, $40,000; insured.

A few years ago the plant of the Albany and Rensselaer Iron and Steel Company, of Troy, the largest steel and iron works outside of Pennsylvania, were appraised at $3,030,000. Since then the producing capacity of the works has been increased 50 per cent. Erastus Corning has been the head and owner of the enterprise, but now, desiring to change it into a new form, a corporation, to be known as the Troy Steel and Iron Company, has been organized, with a capital of $2,500,000. To the enterprise Mr. Corning contributes all the property of the Albany and Rensselaer Iron and Steel Company, and in addition 100 acres of land upon which it is proposed to build new furnaces at a cost of $700,000, and he receives in the capital stock of the new company $800,000. Of the remaining capital, $700,000 will be used to erect the new furnaces, and $1,000,000 to furnish the cash for prosecuting the business. This $1,700,000 of new capital has been over-subscribed for during the past week in New York and Boston, and the subscriptions are now being prorated.—*Boston Commercial Bulletin.*

The Geddes Blast Furnaces, in Syracuse, which have been idle for more than a year, will start on September 1 with 100 men, with the expectation of employing 200 additional men in a short time.

The Westinghouse Company, manufacturers of agricultural machinery, Schenectady, are putting in a 125-horse-power Westinghouse automatic engine. The foundation will be a pedestal about 8 feet high, to allow the engine to couple direct to the main line. The floor of the engine-room will be correspondingly raised.

NEW JERSEY.

Efforts are being made to erect another glass works at Swedesboro.

PENNSYLVANIA.

Carnegie & Brother are putting up a lot of new coke ovens below Larimer, west of Irwin.

When Warwick Furnace, Pottstown, has made 100,000 tons of pig iron, which will be very soon, it will go out of blast. This is a big record.

A meeting of persons holding first mortgage bonds on Blaine Bros.' Car Works, in Huntingdon, was held on July 20, at which $27,000 of the said debt was duly represented. The total amount of these bonds is $35,000. A resolution was passed empowering the trustee to renew the insurance on the works and to issue the proper writs to have the property sold by the sheriff and divest the interest of the Blaine Bros., who have abandoned the plant and are now in Florida. This would give a complete title to one of the best manufacturing sites in the State. The works are splendidly located, being immediately joining the main line of the Pennsylvania Railroad, and are equipped with the finest machinery. Sheriff McAlevy will sell a number of properties on the 11th of September, and it is likely that the car works will be advertised for sale on that day.

The news that the property of the Wheeler Iron Company, of Middlesex, had been seized by the sheriff created quite an excitement last Friday afternoon. There have since that time been many exaggerated reports afloat concerning the failure. The Wheeler Iron Company have been virtually out of business for two years, the works, when they have been in operation since that time, being run by E. A. Wheeler & Co., who hold a lease on the rolling mill and chain factory. The failure does not in any way affect this lease, and Wheeler & Co. will still continue to operate the property until their lease runs out. The furnace is leased by Pickand, Mather & Co., of Cleveland. This firm will fit up the furnace and put it in operation this fall. There is no doubt but that a satisfactory adjustment of all claims against the firm will be made soon. The executions were issued on judgments obtained by Miss Jennie Strawbridge for $1800; Sharon National Bank, $15,850; First National Bank of Sharon, $17,200, and Laura N. Perkins, $30,505.—*Sharon Herald.* In regard to the failure we have the following card from E. A. Wheeler & Co., of West Middlesex: "We find it necessary to correct a false impression caused by the failure of the Wheeler Iron Company. We are in nowise affected by this failure, but are still running the mills and chain works at West Middlesex, and manufacturing steel and iron chains, steel bars, bar and rod iron, special melting bar and blooms, and all grades of muck bar."

The sale of the glass works at Bradford has finally been consummated, and Messrs. Hirsch, Ely & Co., the purchasers, will soon have a force of men at work and give the factory a thorough overhauling, build new melting furnaces and make other extensive improvements preparatory to the September fire.

The stockholders of the Glasgow Iron Company, at Pottstown, have resolved to increase their capital stock for the purpose of erecting two large mills for the manufacture of steel under the Clapp-Griffiths patent. Work on the new building will begin at once.

The Portage Iron Company, at Duncansville, are erecting five very large furnaces with boilers attached to them.

The seven blast furnaces in Danville are all idle.

The merchant mill of the Pennsylvania Steel Company is now prepared to make plain splice plates of steel for 16, 20, 25, 30, 35, 40 and 60 pound rails. These steel splices are said to be much superior to the iron plates commonly made.

The Glendower Rolling Mill, at Danville, which has been idle since the failure of the Danville Furnace Company, Limited, has been leased by William Schull & Co., a new firm, and will be put in operation this week to furnish skelp iron to the American Tube & Iron Company.

The Sharon Boiler Works, Limited, are engaged on the construction of a large kiln for burning charcoal. It has a capacity of 20 cords, and is being manufactured for a Michigan firm. This company have also received the contract for building the two large boilers for the new Sharon water works.

Work on the building and foundations for the mammoth hammer ordered by the Cleveland City Forge and Iron Company, from Bement, Miles & Co., of Philadelphia, is rapidly approaching completion. The hammer will weigh, with appurtenances, over 200 tons. It is claimed by the proprietors that to execute an order for the largest shaft required by any ocean steamer would not tax the hammer to its utmost. The claim is also made that the hammer is the largest in America.—*Iron and Steel Association Bulletin.*

The manufacture of steel castings has been started at Reading, by the Washington Steel Works Limited. The works have just been finished. They were designed and constructed by Mr. Walter M. Stein, who has had experience in Europe in managing a similar establishment for Aug. Stein & Co., at Aix-la-Chapelle. The product of the works will be mainly steel castings, but they will also furnish ingots of any quality desired. The plant consists of an open-hearth regenerative melting furnace with a daily capacity of 10,000 pounds. This furnace is of peculiar construction. The hearth has a basic bed, which, it is claimed, not only improves the quality of the steel, but frees the castings from sand and blow-holes. The best selected steel and iron scrap will be used. The finishing of the molten metal is done by a chemical compound specially prepared at the works. The equipment further embraces a crucible melting furnace, an annealing furnace, core ovens, gas producers, a cupola, &c., and a small machine shop for making finished castings.—*Iron and Steel Association Bulletin.*

Merion Furnace, at Conshohocken, made last week 255 tons of pig iron, the largest record it has ever made.

A dispatch from Reading says: "The experiments with the new steel converter being built at the Scott Foundry for the E. & G. Brooke Iron Company will be conducted at Birdsboro under the superintendency of Mr. Dod, who represents the steel syndicate and was present when experiments were made at Bellefonte in making steel by the Henderson process. In the experiments at Birdsboro the Bessemer method of blowing air through tuyeres into the converter and through the molten metal will be used. The patent on this part of the process has expired."

Mr. Chas. H. Read, assistant to the general manager of the Gautier Steel Department of the Cambria Iron Company, writes us as follows under date of July 24: "In your issue of July 23 there is an article relative to this department, to the effect that it 'was shut down, and would probably not resume for several weeks, owing to necessity for extensive repairs,' which is an error. A portion of the steel mill was shut down for five days, but the entire mill is now in operation, double turn, and will remain so. The improvements and extensions do not interfere with business."

PITTSBURGH AND VICINITY.

The Pittsburgh Bessemer Steel Company's new structural-steel plant at Homestead has been nearly completed. The engine has been put to work, and it is hoped that in a few days the new train will be in operation. Steel beams, channels and other structural material will be made. No new men will be employed, and the output will only be slightly enlarged, but will be of a different character.

Articles relating to the reformation of the limited partnership of Hussey, Howe & Co., which will soon expire, have been placed on record. The aggregate capital is $1,000,000. Of this amount Curtis Graff Hussey contributes $333,000; Mary Ann Howe, widow, $406,000; Harriet A. Hussey, $167,000; James W. Brown, $4000.

A charter for a new iron and steel company was filed Saturday. The new company are known as the Wilson-Snyder Mfg. Co. The capital stock is to be $100,000 Augustus Snyder is the president; Joseph Hite and John H. Wilson, directors, and Robert J. Wilson, secretary and treasurer.

McClure & Co. are building for Chess, Cook & Co. a Hainsworth heating furnace for heating nail slabs. They are also building for the Lucy Furnace Company one Whitwell stove, 21 feet in diameter and 75 feet high. The ironwork is up and they are about to begin the brickwork.

The largest gas well ever struck in the Murraysville district, and perhaps in the United States, was brought in last Saturday. The well is owned by J. M. Griffey & Co., and is down 1630 feet. The hole is perfectly dry, and the volume of output is immense.

It is hoped that the present rise in the river will attain such a magnitude that at least a part of the 3,000,000 bushels of coal now afloat here may be shipped.

Two additional natural gas companies, one the People's Natural Gas Company, being officered by Murraysville gas men, and the other, the Champion Natural Gas Company, composed of Southside capitalists, have been organized and will furnish gas to Pittsurgh and vicinity, unless too heavy pressure is brought to bear upon them by the two powerful organizations already in the field here. Rumors of the consolidation of these two older companies are again being circulated.

OHIO.

The Goshen Iron Company have started their rolling mill at New Philadelphia.

The Pomeroy Coal Company, one of the largest organizations of the kind in the vicinity of Pomeroy, assigned on July 20. No statement of assets and liabilities is made.

Wellston Furnace has started again after an idleness of two weeks for repairs. The furnace is now under the control of King, Gilbert & Warner, of Columbus.

Milton Furnace will, we are informed, go in blast the first of the coming week. This will make two out of the three furnaces in blast here. Eliza will also go in before long. —*Wellston Argus.*

H. Campbell & Sons, of Ironton, who recently made an assignment, have made public three propositions, under which, if accepted by a sufficient number of their creditors, they will be able to resume business.

A new self-feeding nail machine has been invented by a Mr. McKim, of Bellaire. The machine is in operation in the factory of the Bellaire Nail Works, and is giving good satisfaction.

Press dispatches state that the Cleveland Rolling Mill Company are forming a pool, taking in the leading iron and steel makers of the country, so that any manufacturer whose mills are closed on account of strikes, accidents or other causes can have his orders filled by the remaining members of the combination. No details of this project, if it is really on foot, have reached us.

The Champion Iron Fence Company, of Kenton, have been awarded the contract for 8000 feet of iron fence for the Forest Lawn Cemetery, of Buffalo, N. Y., together with a fine cemetery front entrance-way.

The Brilliant Glass Works property, situated at Brilliant, Jefferson County, was put up at receiver's sale at Steubenville, Saturday, but was not sold for want of bidders. This property has been offered for sale a number of times before, but, owing to the lack of bidders, never sold. The property is appraised at $22,500.

MISSOURI.

Representatives of the firm of A. McDonald & Bro., St. Louis, with a view to changing their works so as to produce steel by that process, are examining the Clapp-Griffiths steel plant at Pittsburgh.

The Western Union Wire Company, of St. Louis, have increased their two-point barb-wire capacity by putting in five new machines.

A force of men is engaged this week in clearing away the rubbish and doing other work in the yards of the Vulcan Steel Works.—*Age of Steel.*

The Stevens Fence Company, barb-wire manufacturers, have been closed down since May.

Mr. John Wilson, president and general manager of the Western Forge and Rolling Mills, is visiting Chicago, Alliance, Pittsburgh and Philadelphia to examine machinery now about completed for his company, and to make purchases of additional tools. The largest hammer to be used in the works is an improved machine, built according to plans and specifications prepared by Mr. Wilson himself, who, by the way, is a well-known hammersman. Among the tools to be purchased before Mr. Wilson's return is a huge slotting machine, with a 26 or 28 inch stroke, to be used on cranks and cross-heads for heavy machinery, particularly for cotton compresses and steamboat shafts. The company's railway side tracks and switches were completed this week, and it was the intention to steam up with the small hammer and a few other machines on Wednesday. They have already taken some orders and have an abundance of inquiries.—*Age of Steel*

WISCONSIN.

The Eau Claire Chilled Plow Company, of Eau Claire, made an assignment, the principal creditors being the Bank of Eau Claire, the Chippewa Valley and the National banks. The bond of the assignees is $100,000. No statement is furnished of the assets and liabilities.

ILLINOIS

Messrs. S. H. & E. Y. Moore, Chicago, are now working upon a new hoisting block, which will be made in four sizes from ½ inch to 1¼ inches, rope inclusive. The block will be made of malleable iron and placed upon the market about July 1. Patents of design and block have been applied for.

The Illinois High Speed Engine Company have been chartered, with a capital stock of $60,000, to manufacture high-speed engines, The incorporators are Joseph E. Young, Dexter D. Hardy and Frederick Sandham.

The contract for the vaultwork for the Prairie State Loan and Trust Company's Bank, of Chicago, has been awarded to the Chicago Safe and Lock Company, which have also secured an order for all the vault-work and bank safes for the Grannis Block, now being rebuilt. The company report work brisk in all departments.

The Scranton Mfg. Co., of Chicago, have of late been adding quite extensively to their list of manufactures, the new goods including several new door hangers and hanger attachments, and quite a line of hardware novelties. Additional specialties are soon to be placed on the market by this company.

Robert Owens, of Chicago, has removed to Nos. 83 and 85 North Clinton street, where he has increased facilities for the manufacture of his specialties in brass, bronze and white-metal castings, babbitt metal, &c. Orders are in hand which will keep him busy for some time.

The Butman Furnace Company, of Chicago, are putting in the Columbus, Ohio, Asylum for the Insane two steel boilers, 65 inches by 18 feet, with the Butman furnace, and fitting and resetting seven old boilers.

A set of cracker machinery for George B. V. Erpecom, Bergen, Norway, and a similar outfit to go to Seattle, Washington Territory, are being built at the works of Roth, Mc Mahon & Co., in Chicago.

The firm of Eaton & Prince, Chicago, are turning out a large amount of ore-handling machinery for the Milwaukee, Lake Shore and Western Railroad, their contracts running through three or four months. Among other important jobs now on hand are two large worm geared elevators which they are making for the Chicago Screw Works.

The Chicago Steel Works have added a line of steel sleeves and shovel backs for cultivators to their list of products, and have erected for this branch of their business a two-story brick building, 40 x 90 feet in area, and have equipped the same with a number of drop presses and other machines. The capacity of the new works is 50,000 sleeves and backs per month. The company are also preparing to manufacture patent teeth for threshing machines, and the machinery for this department is being made ready. When it is in full operation the company will be able to manufacture thresher teeth at the rate of 6000 teeth per day of 10 hours.

The La Bastie Glass Works, Ottawa, are now nearly completed, the roofing having been finished last week. Next month the interior will all be put in readiness for the manufacture of chimneys, to which industry it will be entirely devoted.

A new sliding-door sheave will be placed upon the market very shortly by S. H. & E. Y. Moore, Chicago. The door inside the frame will slide in a grooved track, and when passing out upon the floor will be supported by a cast-iron roller about ¼-inch wide, heavily rimmed with rubber. Patents have been granted and the article will be ready for the trade in the course of a few weeks.

Messrs. Wm. Baragwanath & Son, Chicago, are building a 1000-horse-power steam-jacket feed-water heater for the Chicago Cable Railroad Company, which has a capacity of 840 gallons of water, with 1154 feet heating surface, making 1 37 feet to the gallon. The heater will be ready for delivery in the course of several weeks, and is the third which they have built for the Cable Company. The first, a 100-horse-power heater, was built eight years ago, and the second, a 500 horse-power, four years ago, the latter of which has been run day and night since the time it was put in operation. The company report that these heaters have been giving most perfect satisfaction, and that they are enabled, under the most depressing circumstances, to feed their water at not less than 212°, while the ordinary temperature is 214° and 216°, without back pressure. They further state that they have never expended a cent on repairs for either of their two heaters since they have been in use

MARYLAND.

Fire on the morning of July 16 destroyed the rolling mill at the Baltimore Copper Works, at Canton. The damage is estimated at $25,000; partially insured.

TENNESSEE.

The Daisy Mines, at Daisy, have been sold to the Tabler Crudup Coal and Coke Company, of Inman, who will erect 100 coke ovens and increase the mining facilities.

KENTUCKY.

The Ashland Coal and Iron Railway Company have purchased a new blowing engine in Pittsburgh. This was done in view of the facts that their present engine has been in constant use for nearly 14 years, and also that the company contemplate building another stack in the future.

TEXAS.

The Alcalde Furnace, located at the State Penitentiary, 1 mile from the town of Rusk, in Cherokee County, was constructed by the State for the employment of convict labor, under direction of Mr. E. C. Darley, C. E. We have frequently seen convicts leased to Southern furnace proprietors, and engaged in wood-cutting, charcoal-burning, or ore-mining, under guard, and working with ball and chain, but Alcalde Furnace is unique in being surrounded by a stockade, with guard boxes, and depending solely on convict labor, except so far as founder and bosses are concerned.—*Charcoal Ironworkers' Journal.*

HARDWARE NOVELTIES.

Solid Emery Knife Sharpeners.

The illustration given herewith is of a Knife Sharpener which has recently been put on the market by William H. Parkin, 11 South Water street, Cleveland, Ohio. The cut, giving a sectional view of the sharpener, clearly indicates its construction. It has, it will be perceived, a steel wire running through it and screwing into the handle, thus at once securely attaching it, and giving it the requisite strength, so that it is not liable to be broken. Special attention is called by the manufacturer to the fact that it is not coated with emery, but made solid of the best Turkish emery, and thus exceedingly durable. It is about 12½ inches in length, with an apple-wood handle and plated ferrule. The sharpener is a little larger in diameter than the ordinary steel. It is neatly finished, each sharpener being put up in a separate box. The manufacturer is at present making them only with apple-wood handles, but advises us that he will soon have some ready for the market with rosewood and cocobolo handles, and a little later with celluloid, vulcanized rubber and horn, to match carving sets already in use.

Solid Emery Knife Sharpener.

Combined Measure and Funnel.

The accompanying engraving represents what is known as Wright's Combined Measure and Funnel, of which Wm. J. H. Gluck, of Baltimore, is the exclusive manufacturer. As will be readily gained from the illustration, the device consists of a funnel very much resembling the ordinary article, hinged below the lip of an ordinary flaring measure. The special advantages growing out of this construction will be readily apparent to any one who gives the matter a moment's consideration. The funnel is always in position for use, and, being fastened to the measure,

Combined Measure and Funnel.

can never be lost. The two articles being connected by a hinge joint, renders it possible in many instances to do with one hand what in other cases would require both hands. Measures embodying this feature are furnished to the trade in sets, the list price and discounts of which will be found in our Trade Report of this week.

Large Forgings.—The Howard Iron Works, of Buffalo, N. Y., are at present engaged in finishing for the De Laney Forge and Iron Company, of that city, two large forgings designed as links for cotton presses. They are elliptic in shape, 21 feet 4 inches long on the inside, and 8 feet across. The ends are 13 inches wide and 9¼ inches thick, narrowing down until at the sides they measure 9 inches square. They were forged with the aid of a 10-ton hammer at the De Laney Forge. When the rough work was done the question of how they were to be faced arose. The machinery at the forge not being adapted to the purpose, they were taken to the Howard Iron Works. Each link weighs 9 tons. The first end was nicely bored, but when it was turned the work became delicate, as it was too large for the bed of any lathe they had. It was blocked and fastened at the door of the machine shop, and held in such a way through blocking that true boring could be done. The forging is said to be the largest of its kind in the country, and the difficult work done on it both by the Howard Iron Works and the De Laney Forge speaks well for the facilities of the two establishments. At the De Laney Forge the workmen are now finishing for an ocean steamer a double throw crank which weighed 10 tons when it came from the hammer, and when finished it will weigh 6 tons. The forge has put in this spring what is probably the largest lathe in the country, the bed having a length of 70 feet. There are two driving-heads, with a swing of 5 feet. The weight of the lathe is 120,000 pounds.

NEW PUBLICATIONS.

HANDY ESTIMATE BLANKS. Compiled and arranged by J. D. Sibley, architect and builder, and A. O. Kittredge, Editor *Carpentry and Building*. Size 9½ x 12 inches, 28 pages, tinted paper. Published by David Williams, New York. Price, single copies, 15 cents; per dozen, $1.50.

THE PRACTICAL ESTIMATOR; being a companion and key to the Handy Estimate Blanks. By J. D. Sibley, architect and builder, and A. O. Kittredge, Editor *Carpentry and Building*. Size 4¾ x 7 inches, 100 pages, bound in cloth. Published by David Williams, New York. Price, $1.

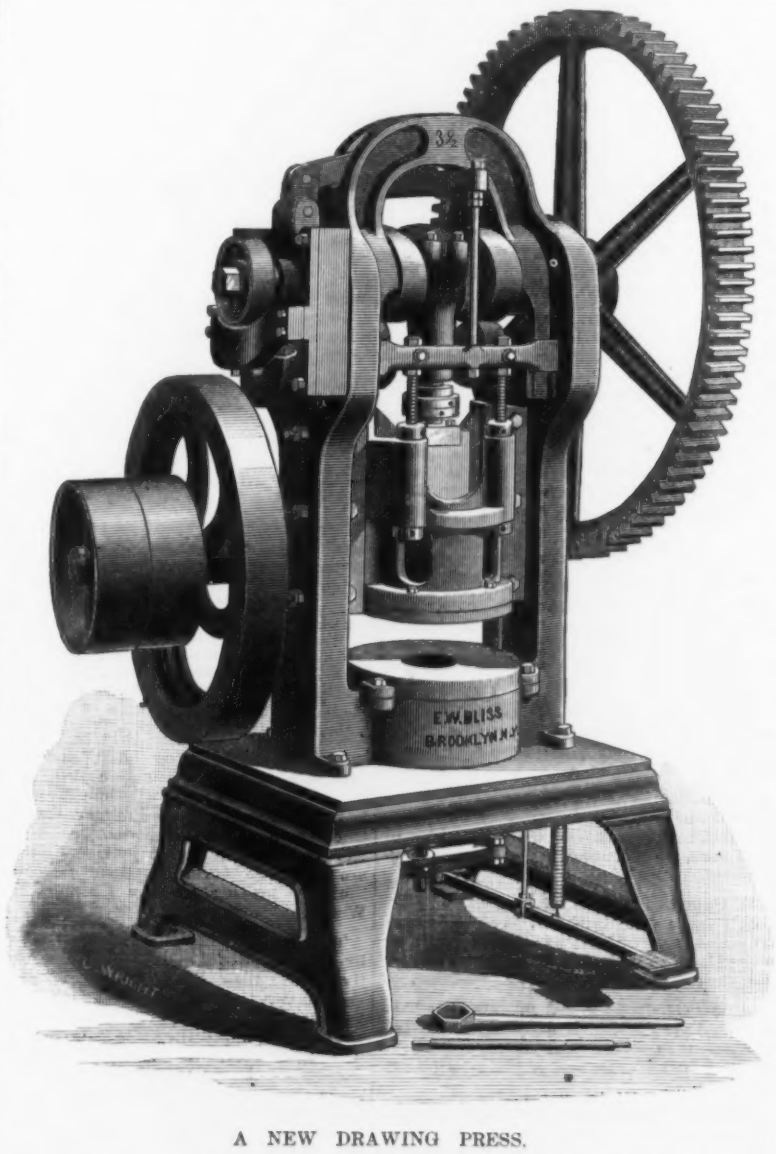
The "Handy Estimate Blanks" have been prepared with an idea of furnishing to contractors and builders a convenient form upon which to make estimates and record the cost of the work which they execute. The blanks are arranged upon a somewhat elaborate plan, so adapted, however, as to make their use equally convenient whether the system indicated is carried to the extreme or some portions omitted. Two general divisions of work are recognized, namely, Masonry and Carpentry. Under each of these heads subdivisions are indicated, which include all the parts of the work required to complete any ordinary structure. For example, under "Masonry" there is listed, among other items, Excavations, Footings, Foundations, Underpinning, Windows, Hatchway or Area, Piers and Partitions, Chimneys, Mantels and Grates, Lathing and Plastering, Drains, &c. Under "Carpentry" there is listed Frame, Frame Covering, Gable Covering, Roof, Cornice, Cellar Hatchway, Windows, Veranda, Fanlights and Transoms, Floors, Closets, Storeroom, Doors, Stairs, Cupola, Outbuildings, Fences, Painting, Tinning, Plumbing, &c. These general divisions are in turn subdivided, and under each are listed the items which go to compose them. For example, in "Carpentry," under the head of "Veranda," the following items appear Pine Timber, Hemlock Timber, Roof Lumber, Finishing Lumber, Flooring, Roof Covering, Mill Work, Moldings, Iron Work, Tin Work, Nails and Spikes, Labor, &c. Each of the other divisions is similarly subdivided and analyzed. In the column rulings there is a space for "Estimated Quantities," one for "Prices" and then a space for extensions entitled "Estimated Cost." Outside of these rulings there is another set of columns entitled "Actual Quantities," "Actual Price" and "Actual Cost." This arrangement affords a convenient system of comparison between estimated cost and actual cost, not only upon an entire job, but also upon any particular portion of a contract. Further, each of the several subdivisions is so arranged as to be complete in itself. The scheme that the authors have had in mind is that work shall be figured on the basis of actual cost, without any allowance for profit whatsoever, and that the profit shall be allowed either in the way of a percentage or by an arbitrary amount entered in the space provided for the same. The arrangement is such that each individual part of a building may be figured independently of all the others, as to cost and allowance and profits, or all may be taken together and a single entry made for the allowances and profits. Materials are figured independently of the labor required to put them in place, the latter being separately listed in each division. The various subdivisions are numbered, and at the close of the blanks a page is devoted to recapitulation. In it provision is also made for estimated cost and also actual cost, thus facilitating study and comparison.

In addition to the items listed as composing a building, a number of blank spaces are provided, both under the head of "Masonry" and "Carpentry," for listing such items as the special character of a given contract might make necessary, or which the practice of a given neighborhood might require. Further, blank lines are allowed in each of the schedules of the elements of the general divisions. Accordingly, it would seem that there could be no emergency in estimating on any peculiar plan which the individual estimator may desire to follow that these blanks do not provide for. Aside from the general arrangement above described, the blanks provide one or two features worthy of special mention. The 22d page is devoted to a table of Principal Dimensions. Among the items listed are Hight of Stories, General Dimensions, Lengths on Different Lines, and of Different Parts, Hights of Different Parts, Dimensions of Rooms, Dimensions of Doors and Dimensions of Windows. This table is on the outer half of a folded sheet, and is so arranged that the items in it may be filled out as the measurements of the plans progress. By spreading the leaf out to its fullest dimensions, the table is brought alongside of the pages on which work would be done, and therefore is convenient for receiving the items that are to be entered upon it, and also for reference when dimensions can be derived from it, thereby saving remeasurement of the drawings. The general idea upon which it is arranged is that the general dimensions shall be taken once for all from the drawings, thus saving repetition of work. On the back of this folded leaf are arranged a number of tables convenient for use in estimating, prominent among which is a Timber Table. These are of instant reference by merely turning the leaf forward. The first page of the cover of the blank is devoted to a form in which certain data upon which the estimate is based may be conveniently recorded. Among the items may be mentioned, Name of Building, Name of Architect, Name of Owner, and a List of Drawings which were used in the estimate. There is also a space for recording such verbal explanations as influence figures. On the inside cover page space is afforded for a record of the date at which it is understood the work is to be executed, the terms of payment proposed and other important particulars. There is also a form convenient for recording a copy of the proposal which is tendered, based on the estimate, and also a form for recording competitors' figures. In the latter part of the blank a page is devoted to a Schedule of Timber, upon which the material entering into the structure may be analyzed and listed under such heads as Girders, Sills, Posts, Beams, Plates, Studs, Joists, Rafters, &c., for Main Building, for Right Wing, for Left Wing and for Extension. The table is so arranged as to permit the listing of the number of pieces, with lengths and dimensions. Opposite each item there is space for two sizes and for four different lengths. The scheme in this part of the work is that at the time of estimating, or at least when a contract has been received, the work shall be analyzed and a bill of timber made out upon this form. Opposite the page is a duplicate Timber Schedule, which is perforated so that it can be readily detached. The duplicate schedule is intended as an order to the mill or yard for the timber, and also as a list to give to the outside foreman when the timber is delivered, thus indicating the location in the building of each separate piece. The value of this feature of the blanks will be appreciated by all careful builders. The blanks are not so complicated as this description may seem to indicate, but every part has been carefully considered and provision is made for many different things to be used at the discretion of the estimator.

The second book noted above is a companion and key to the "Estimate Blanks." It contains, among other items, full directions for the use of the blanks, with a description of their various features, some of which we have attempted to indicate above. It also contains a chapter on Preparing Builders' Estimates, which is of value to the trade at large, whether they employ these particular blnnks or not. It also contains a List of All the Items Ordinarily Entering into a Building, so arranged as to be a convenient and systematic reminder of what is to be listed in making an estimate. This last is arranged in the same general order as the items in the blanks already referred to, but enters far more into detail than the blanks, and, instead of being in the form of an analysis of materials and labor entering into any part of the work, is of the character of a reminder of what the drawings and specifications may possibly show. This list is of the greatest importance to builders generally, and would be serviceable no matter what plan of estimating is followed. The list of items is provided with ample blank spaces in which still further items may be entered in order to make the list complete for any given neighborhood or to agree with any special plan of construction. The book is arranged in such a form, so far as this list is concerned, as to be kept open before the estimator when going through a set of drawings, allowing him, if he desires, to check off the different items, thus keeping track of his work and affording him a convenient means of avoiding omissions or duplications. A considerable portion of the book is devoted to a Selection of Tables, Rules and Formula Useful in Preparing Building Estimates. An Epitome of Mensuration is given, a Table of Multipliers for Facilitating Calcutions is presented, and a selection of tables is offered which cannot fail to be of great advantage to all who have estimates to make. The tables of Slating and Tin Roofing are particularly complete. Tables of Wells and Cisterns and Coal Bins, and also the Wages Tables, have been carefully prepared. The general plan of estimating presented in these two books is one which has been sanctioned by the successful practice through a long term of years of Mr Sibley, who is a practical builder of wide experience. The scheme has been somewhat extended and amplified by the Editor of *Carpentry and Building*, both in view of his own experience as an estimator and in the light of suggestions made by many correspondents of this journal on matters of this kind during the several years of its publication. The work has been very carefully prepared in all particulars. While it would be strange indeed if the system shown were faultless, it is confidently offered to contractors and builders as being better adapted to their purpose than anything that has ever before been presented to them.

A New Drawing Press.

The No. 3½ drawing press shown in the cut embodies several new features, and in building it the aim of the maker has been to reduce the number of parts to a minimum and to secure symmetry and correctness of design no less than mechanical excellence. The main shaft is 4¾ inches diameter and made of the best hammered steel. The cams operating the blank-holder are cast steel, as are also the rolls, the latter being bushed with gun metal and running upon tool-steel pins which are of large size to prevent cutting. A new device, and one for which a patent is now pending, has been introduced for adjusting the pitman, whereby the punch may be rapidly and accurately raised and lowered without removing the lever bar, and secured when adjusted without the ordinary jam nuts. The mechanism for raising the blank-holder is entirely new, and is referred to as being a great advance on others heretofore in use. Guides are cast upon the left side of the body, in which slides a cast iron yoke, within an opening in the center of which is placed the lifting cam on the end of the main shaft, and in the lower side of the yoke or frame is placed a steel roll. The main body of the press is arched at the top, in which a space is cored, allowing a lever to pass through, one end of which is connected to the top of the lifting yoke by a link, and the other end to a cross-bar passing from front to back just over the main shaft. From the ends of this bar two rods are connected with guide-bars fastened to the blank-holder yokes, the guide bars serving the double purpose of lifting the blank-holder and guiding the blank-holder yokes. The press has been improved in several other directions, as, for instance, increasing the size of pulley-shaft bearings; making all bolts and nuts easily accessible; openings in blank-holder to let in light, so the punch may be seen through them, &c. The press weighs about 1000 pounds more than the old style, the additional weight being distributed so as to do the most good. This press is manufactured by Mr. E. W. Bliss, Brooklyn, N. Y.



A NEW DRAWING PRESS.

Foreign Markets.

FRANCE.

PARIS, July 13, 1885.—*Metals.*—Most merchants are leaving the city for their summer vacation, and business feels their absence. Metals, with the exception of Lead, which shows quite an advance of 3.75 francs are all lower, dull and neglected at the following quotations: *Copper.*—Chili Bars, 113.75 @ 116.75 francs ₱ 100 kg.; Ingots and Slabs, 120; Best Selected, 123.75, and Pure Corocoro Ore, 115. *Tin.*—Banca, 238.50; Billiton, 237.50; Straits and Australian, 252, and English, 240. *Lead*, 32 @ 33, and *Spelter*, 35.75 @ 36.25. *Iron.*—The market has been completely upset. Merchant and Flooring do not bring over 13.50 @ 14 francs ₱ 100 kg. Rolling mills are seemingly at a loss what to ask, and press their holdings for sale right and left at almost anything they can get. The famous syndicate that was about to be formed among rolling-mill owners North and East has proved a complete failure. This abortive attempt at improving the Iron situation in France if possible has produced a feeling of discouragement in all directions. We are informed from Saint Dizier that business is confined in that district to reassorting stocks in hands of dealers, owing to the dull summer season, which paralyzes everything. They are selling Coke Merchant at 14.50, Mixed at 16, Wire Bars at 16.75 @ 17; Chains, No. 23, at 45 @ 47, and Wire Nails, No. 18, at 25 @ 26.50, at which they are firm. *Coal*—Great dullness prevails therein all over France.—*Moniteur des Intérêts Matériels.*

BELGIUM.

BRUSSELS, July 13, 1885.—*Iron.*—The market during the week has been dull and ill sustained, the more so as blast furnaces have lowered their prices for Puddling Pig, but this is likely to be the last reduction they will make, the stock in the country not being excessive. While rolling mills have had the advantage of buying cheaper, they have, on the other hand, been compelled to sell the products in proportion. It is true Coal has also declined, but wages have been depressed to a point so low that they can hardly be expected to decline further. Everybody makes superhuman efforts to secure a few orders, and the result is that the margin of profit is no better than early in the year. English Pig sells at 4.60 @ 4.70, Luxembourg at 4.80. Foundry Pig is sustained at Charlerol at 6.50 @ 6.75. Puddling Pig ranges between 4 and 4.70 in the Grand Duchy of Luxembourg. No. 1 Merchant is very cheap, say 10 francs for export and 10.25 @ 10.50 for home use. Beams are down to 10.25 @ 11, and Angles to 11.50 @ 13.25. Sheets range from 13.25 all the way to 28.75, the latter for No. 4. *Coal* has given way to a point where it hardly pays to mine it—4.25 @ 6.50 francs ₱ ton, Common Steam Coal.—*Moniteur Industriel.*

GERMANY.

HAMBURG, July 13, 1885.—*Iron.*—Our Dortmund correspondent expresses himself as follows: The business in rolling-mill products has not developed the animation expected in May; on the other hand, quite a demand has sprung up in Domestic Iron Ore, exhausting stocks and causing a further rise, especially in Ores suitable for the Thomas process. The position of Pig Iron generally has also improved, in Puddling Pig in particular, now 1 mark ₱ ton higher. Thomas, Spiegel and Luxembourg Pig have all been active, but Foundry and Bessemer remain weak, but the Siegen curtailment of production will improve these, too. Merchant gave way to 104 @ 106 marks, base. Thin Sheets are sustained with some difficulty; the output of Coarse do. has had to be restricted. Wire Bars continue neglected, there not being enough of an export demand; hence prices are depressed and unremunerative. Steel works are, on the whole, quite busy, also in Railroad Material, though but few new orders have dropped in latterly; at late adjudications Steel Rails were also several marks lower. At low prices Hardware manufacturers are kept busy enough. Many machine shops, foundries, boiler shops and Structural Iron works have no cause for complaint; others have. All locomotive and car works are doing well. We quote Spiegel, 46 @ 50. In Upper Silesia blast furnaces are for the moment in a poor plight, there being neither an outlet for Poland nor for Austria; Puddling is selling at 46 @ 47, and Foundry at 54. Foundries are doing tolerably well. All rolling-mill products have been in brisk request. *Spelter* and *Lead* production has declined somewhat in Silesia in consequence of trouble about wages. *Metals.*—Prices are no higher in this market, although Lead continues in insufficient supply.—*Borsenhalle.*

HOLLAND.

ROTTERDAM, July 11, 1885.—*Tin.*—A large business has been done at 55 guilders for Banca from the next sale and August-September. Billiton at the same figure, while at Amsterdam Banca brought 55.75 and Billiton 53.75 @ 54, spot and afloats.—*Koch & Vlierboom.*

CHILI.

VALPARAISO, June 1, 1885.—*Copper.*—After some slight fluctuations, in sympathy with changing cable news, there is a better demand at the close at $17.20 ₱ quintal, which equals £43. 10/ in London. Sales, 16,044 quintals. *Nitrate.*—In spite of discouraging advices from abroad some 700,000 quintals, spot and futures, changed hands at $2.75 @ $2.90 for 95 @ 96 %, closing at $2.82½, 95 %, which is equal to 8/9, with 35/ freight. Chartered since May 15, 18,000 tons for Europe and 7,900 tons for the United States. *Coal.*—Little has transpired at 32/ @ 33/, West Hartley as to delivery, and 30/6 Orell. *Exchange*—90 days' sight bank bills, 25½d. —*Weber & Co.*

CONTENTS.

Early Experiments Involving the Flow of Metals.*

BY W. E. WARD.

Forty years ago the physical properties and characteristics of metals were less understood in some respects than they are now, and it followed that the less elaborate technical knowledge of that period had to be supplemented as far as possible with superior practical skill. It sometimes happened, because of inexperience, that the qualities of metals which are rightly regarded as the most useful and indispensable to the great majority of industries, seemed to be in exceptional instances almost fatal to the complete success of others. Experts in wire-drawing were not blind to the fact that the possible extreme reduction in section of rods while passing through the die-plate was due to their malleable and ductile qualities. When the same kind of metal was subjected to intense compression it was observed that its cohesive integrity was equal to sustaining, without rupture, a limited lateral displacement quite as uniformly as it did the tensile strain required for drawing into wire, as had been familiarly illustrated in upsetting the heads on bolts and rivets, which is a test of the severest kind on the fibrous structure of metals.

The significance of these now well-understood characteristics of some metals did not appear to induce any special inquiry, or awaken an interest equal to their importance until M. Tresca, of Paris, became engaged in conducting a series of careful and exhaustive experiments with the view of determining, if possible, the law now known as the "flow of solids." A report of his labors was presented in a lengthy paper to the Institution of Mechanical Engineers at their meeting in Paris in 1867. This interesting report embraced the results reached by him in experimenting with lead disks under compression in a variety of ways, as well as with ceramic materials. He furthermore subjected heated wrought-iron disks to similar tests, and observed that in all the materials employed in his experiments the tendency was invariably to flow "in the direction of least resistance." The conclusions of Tresca, reached by his own methods of original research and patient labor, gave some little importance to a feature developed in a series of experiments made by the writer as early as 1845, the first stages of which involved such a sharp contest with the flow of metals as completely to defeat the success of a novel machine which was designed and constructed for the purpose of heading long countersunk screw blanks and rivets in solid dies.

The device employed for holding the dies (four in number) was an indexed *roulette*, which was actuated in the usual manner. The half-revolution rest-periods peculiar to the common *roulette* movement, among other promising advantages, permitted, while at rest, the feeding of the wire for the blanks at one point, the heading of a blank at another and the discharging of a headed blank at a third point simultaneously; so that nearly all the movements in the machine favored the use of eccentric motions, to the exclusion of cams, which simplified construction and resulted in harmony of movement. But when making a practical test of the machine it was soon discovered that the headed blanks were so firmly upset and fixed in the dies that a resistance almost insurmountable was presented to the mandrel provided for discharging them from the dies. A further and even more serious difficulty appeared in the bursting of the dies during the heading process; although they were 1¾ inch in diameter by 1¼ inch long, and the wire used no larger than No. 3 wire gauge, yet, with the most careful tempering, they failed to withstand the lateral strain involved in heading countersunk blanks.

The cause of the trouble was not clearly revealed until a number of blanks were made designedly in a die which had been burst in this manner, all of which showed a thin fin or spine of metal which had been forced out from the sides of the blanks during the heading operation, into and along the whole length of the fracture in the die. The question then confronted was whether such a fracture could occur under the amount of compression required for heading a screw blank, and a lateral flowage of metal follow into the fracture, unless the metal operated on was subject to a law that controls alike substances of every material consistency, whether solids or fluids. From the evidence furnished by the results of the experiments there seemed to be but one reasonable conclusion, which was that, as a rule, the movement of solids analogous to liquids under compression, will, at some definite extreme, react on a lateral barrier to their movement with the same persistence (less the difference in friction) as they exert in the longitudinal directions. The dies containing the blanks during the heading operation rested solidly against an immovable hardened steel block, which sustained the longitudinal thrust resulting from the heading movement. As there was no relief to the die under pressure after the limit of space for the blank in the die had been filled up, the lateral strain within the die before the completion of the heading was so much in excess of its resisting capacity that the bursting of the die under the circumstances was just as inevitable as the bursting of a hydraulic cylinder when loaded beyond its ultimate limit.

The practical remedy was within easy reach when the cause of the difficulty had been made clear, and, when the question had been reduced to a matter of mechanical device, it was not long before a simple and effectual way opened which led to final success. The conditions simply required that a relief movement be provided in order to save the die from excessive lateral stress during the severest part of the heading operation. To accomplish this it was necessary to introduce a new order of mechanical devices, such as would invariably give the required relief to the dies before the breaking strain was reached. The main feature required in the mechanical improvement was the employment of a mandrel actuated by an adjustable cam in combination with a single stationary solid die, mounted in a suitable frame, so as to perform the triple duty of transferring the blank to the die, supporting it while it was being partially headed and finally discharging it when the heading was completed. This arrangement required that the centers of the hole in the die, the mandrel and the heading punch should all be located upon a common axis. When the wire for a blank had been fed into the machine and gauged to the right length, it was then cut off and transferred by a simple device to the rear end of the die, and in line with the axis of the hole where it was met by the mandrel, ready to move forward in the same axis. This movement of the mandrel carried the wire blank into and far enough through the die to supply the exact quantity of material required for forming the head on the blank at the opposite end of the die.

At this stage of the operation the most important function of the mandrel was called into play. During the period of rest, after transferring the wire blank to be headed into the die, the end of the mandrel then constituted the temporary seat for the shank end of the blank to rest against, and it was timed at this point to remain stationary long enough to sustain the heading pressure required from the opposite side, to form a bulb of metal of sufficient size to make a full completed head on the blank. This accomplished, the mandrel retired out of the way, while the heading movement continued until the head was finished at the end of the stroke; then, as the heading punch receded from the face of the die, the mandrel again returned and performed its last function of discharging the blank from the die. It is clear, that by this method no serious lateral pressure could be exerted during the formation of the bulb, and it is evident that any surplus metal in the bulb not required for making the head flowed harmlessly back into and along the line of the shank, thus saving the die from all danger of bursting and from the difficulty encountered in the first experiment in discharging the blanks after they were headed. It furthermore made the way easy and practicable to head screw blanks and rivets in solid dies at least 3 inches longer than had been possible heretofore by that method.

By far the most interesting feature developed in the experience was the discovery of the cause which had defeated the first experiment, and which so readily suggested the means by which all that remained questionable in the problem could be disposed of. It furthermore indicated that as a fundamental principle there is a constant tendency in substances when yielding under compression to flow "in the direction of least resistance." The illustration of this tendency, as witnessed in the partial upsetting and final distribution of metal under compression in solid dies, afforded good ground for concluding that the same tendency was discernible in the results of other mechanical agencies employed in changing the forms of malleable metals, whether through a system of cold or hot rolling, forging or through any other appliance by which they are forced from one form into another.

DISCUSSION.

Mr. Oberlin Smith: I have done a good deal of work in drawing sheet metals—iron, steel, brass, copper, gold—not principally the latter, however—and tin plate. The process is probably known to a good many, but it may not be familiar to all. The upper die U, Fig. 1, descends first and the punch P with it, or approximately with it. If the dies are combination dies—that is, to both cut and draw—the blank shown at A, Fig. 2, in cross-section, and A′ in top view, is cut during the descent of U from a sheet of metal laid upon the female cutting edge *i*. If these dies are not to cut, the edge *i* is rounded off and need not be of steel, as it acts merely as a guide for the blank, which has been cut somewhere else, and is laid in upon the surface *j* of the lower die L. As U completes its downward stroke, its lower surface just touches the metal blank—in practice it touches it very firmly and under a heavy pressure, to allow for the springing of the press. The die U now being stopped, and remaining exactly there (actuated by a cam motion usually), the punch P descends and draws the metal in the successive forms shown at B, C and D, Figs. 3, 4 and 5. Cylindrical work like D drops through the die, being prevented from rising with the punch by the sharp stripping edge K. Of course the action upon the metal is a flow in all directions. The particles at the outer edge all have a flow outward. The primal flow is circumferential, because as the blank tends to get into a smaller diameter the circumference becomes smaller. Thus all the particles are crowded toward each other circumferentially, and stretch apart radially to get out of the way. On tin plate or other metal which has been marked it is very apparent how the metal has moved. I had some blanks that were marked off in lines $\frac{1}{10}$ inch apart at right angles, and it was very easy to see which way the particles of the metal had gone. This movement is shown in Figs. 2, 3 and 4, where certain four particles of metal in the blank are represented by four dots at the corners of a square upon A′. Upon B′ and C′ can be seen the successive changes in position of these dots as the square becomes a more and more elongated diamond. I have a formula at home for determining the size of the blanks for given work, according to its diameter when finished, its depth and the amount of rounded corner. It is astonishing to a novice to see how a comparatively hard metal like tin plate will stand this process. Ordinary tin plate will draw to a depth of about half its diameter at one operation. Beyond that limit you cannot go far. When you use sheet iron and steel the proportions are about the same as with tin plate. When you come to brass and copper, of course, you can get a much greater depth at one operation. With gold I have done a little in the way of watch cases, &c., and it works about the same as copper. Copper you can get deeper than brass. With all these metals it is necessary that the surfaces *h j* should come together with the proper pressure thereon, but if the pressure is too heavy the friction becomes so great that the punch bursts through. If it is too little the metal begins to wrinkle. The mean point between too great pressure and too little pressure prevents either wrinkling at *h j*, or tearing through around the corner of punch at *g*. In a second operation, where deeper work is wanted, another pair of dies are used. The blank holder is made thin enough to come down inside the first made "cup," and with a ductile metal like copper you can continue this process three times or more without annealing. Then you anneal and do it again. With tin plate, which you cannot anneal, of course the difficulties are greater. You can draw that in about three operations. I have seen a tin-plate box twice its diameter in depth, but such proportions are rare. They draw teapots and pitchers and all such work as that, and they close them in afterward at the top by spinning. Such work, however, is usually drawn from black iron, so that it can be annealed and it is tinned subsequently.

Mr. Kent: How does mild steel compare with copper in its ability to be drawn?

Mr. Smith: I have not made accurate experiments to compare them, but I have noted casually that it draws as well as sheet iron, but not so well as copper. I cannot, however, give figures showing the amount of difference.

Mr. Stratton: Does it make any difference with what rapidity the die is worked in the drawing of these metals? If it is worked quickly will it have a tendency to crack more than if it is moved slowly?

Mr. Smith: Yes, sir. Iron will, however, stand a faster flow than brass or copper. It would seem that it should be the other way, but I believe the case to be as I have stated it. In all work of a kind like Fig. 6, E, the sides are wrinkled; it cannot be drawn smooth. The cylindrical work D can be made smooth because its flange is held by the pressure almost up to the punch. But the conical work E is unsupported from where it leaves the surface *j* over to the smaller end of the punch. There is a little annular disk of metal there unconfined. Consequently the wrinkle commences to form just as it passes down the corner of *j* and continues down all the way. This defect has to be overcome by roller-spinning. That is the way that dish-pans, wash-basins and such things are all done. They are drawn in one operation, but roller-spun afterward. In practice, whenever we set our dies to the best advantage, so as not to wrinkle the metal nor tear it, the metal remains of the same thickness after drawing as it was in the original blank. In cartridge work the blank is made so much too thick for the die that there is not room for the metal, and in such case the work is drawn thinner, in a manner analogous to wire drawing, but where the punch allows room for the original thickness of metal there is, of course, no making thinner; neither is there making thicker, the fixed space between *h* and *j* not permitting. So our formula for determining the diameter of our blanks is based upon the fact that the total surface area of the drawn cup or other work is exactly the same as in the original blank. Sometimes where we have a new thing come to us (that we have not made before) of such a shape that it is hard to calculate the area, we take such a sample and weigh it and measure the thickness accurately, we know the weight of a square inch of such metal, and can calculate its area from that, generally finding it to come out about right. There is frequently a good deal of money spent in trying blanks for a new pair of dies. This process of determining the area—making the area of the blank just the same as the area of the work—is all that is required, unless, indeed, there is some deeply embossed contour made by the end of the punch, which necessarily stretches the metal thinner.

Mr. Partridge: I would like to ask Mr. Smith if he does not find that the metal flows around the circumference of one of those deep dishes, and there are points where the metal has been flowing horizontally and there are points where its flow has been vertical.

Mr. Smith: Yes, sir, slightly so—with very deep work considerably so. I attribute it to three causes—one is irregularity in the die, there being a slightly less space in some places than in others; another analogous cause is extra thick places in the metal, and the third is harder or softer spots than the normal hardness, perhaps with irregularities infibrous structure. It is chiefly due, however, to the irregularities of the dies—the surfaces not being perfect planes—and to the dies springing. If a die is made flat it will often bend down in spots and a wrinkled place will start even though the dies are perfectly true and parallel with each other. The secret of building successful drawing presses is to make the horizontal members of the presses enormously deep, so that their rigidity will prevent the dies from springing "out of flat."

Mr. Partridge: I referred to a matter altogether different from that. From such measurements as I have been able to make on drawn work with pieces of tin lined in this way and radially, I came to the conclusion that when it was drawn those lines, instead of being equally disposed around this side, would be far apart here, one going here and so around—a regular rythmic series around the whole plate. In other words, that there were points determined by the grain of the metal where the metal will come together. There were other points where it flowed lengthwise, and that these printed patterns showed that that was the case even when the drawing was perfect.

Mr. Smith: I would say that there is sometimes that irregularity, although I do not see why it should be in rythmic form unless it is in the lathe, leaving the die slightly but regularly corrugated. I have noticed that there is a difference in the grain of the metal. In tin plate there is not much difference, because it is rolled crosswise in both directions, but in long strips of brass the grain runs lengthwise only. There is a tendency for the blanks to stretch sidewise the most, but the extra thickness of the sheets in the center (caused by the rolling-mill rolls springing) gives more pressure and consequent radial stretching, thus having a tendency to counteract the other evil. With regard to the surfaces *h* and *j*, we find that if made very flat, and then oil-stoned in a radial direction, the metal will stand considerable more pressure without tearing through than if they were polished.

Mr. Kent: Has the radius of the fillet any influence? assuming that by "fillet" you mean the rounded corner near *j*.

Mr. Smith: Yes, sir. In practice, for tin plate and brasswork we make it from $\frac{1}{16}$ to $\frac{1}{8}$ inch, but more would be better, so far as reducing the pull upon the metal is concerned. If, however, we make it too great we lose so much of the bearing surface of U as to cause wrinkles. At Figs. 6 and 7 are shown forms which are very difficult to draw, because there is so much flange to make flow in proportion to the circumference of metal (at the end of the punch) that has to do all the pulling. In such cases the work is very apt to have its bottom torn out.

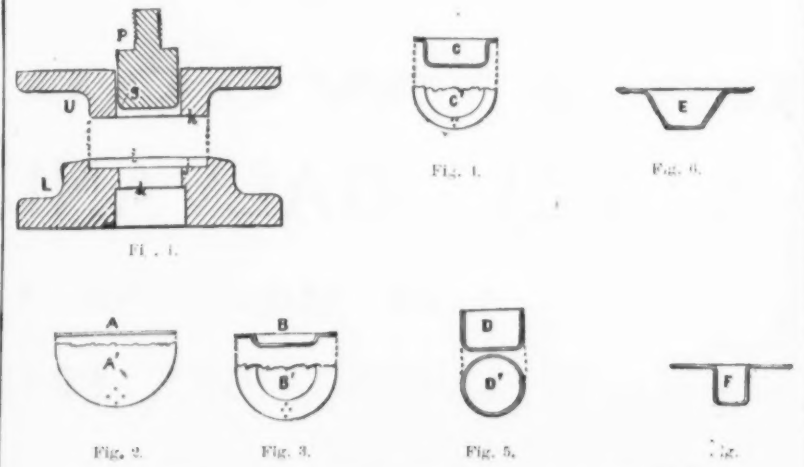


Fig. 1. Fig. 4. Fig. 6.
Fig. 2. Fig. 3. Fig. 5. Fig. 7.

EARLY EXPERIMENTS INVOLING THE FLOW OF METALS.

A German Engineer on Small Bessemer Works.

R. M. Daelen, in an article contributed to *Stahl und Eisen*, believes that the depression in the iron trade is largely accountable for the lively interest taken in the question discussed by the iron trade, whether small Bessemer works possess a future. He urges that attention would not so generally have been given to a new departure in the manufacture of steel if the relation between supply and demand had not inevitably led to a thorough examination of any method promising a profit. In other words, there would be a far greater tendency to live and let live if the struggle for existence had not forced the consideration of every means of obtaining a revenue. By the introduction of dephosphorizing the conditions affecting production in the iron trade have undergone far-reaching changes. The crisis thus brought about is made more intense by the slackness of the demand in the whole world. Blast furnacemen hope to gain by putting in appliances for working pig iron into ingots, while the industries based upon the production of finished goods from an intermediate steel product desire to become independent of the large steel works. To both small Bessemer plants appear to hold out the advantages of a cheap plant and simple working as compared with the other known methods of steel manufacture. It is to this circumstance that is due the attention given to them. Under other conditions this would not have been accorded it, since in reality they represent the infancy of the Bessemer process, and all past experience has always led to the enlargement of the appliances in order to lower cost of production. It will not do to condemn the new methods on these grounds alone. The results of working thus far obtained furnish the proof that it is possible to manufacture practically in small vessels. But a negative answer must be given to the question whether the general condition of the iron trade will be improved by the introduction of the method, because the decline in values will only be accelerated through the great capacity of the iron and steel works in the face of a moderate demand. The decision must be reached, in every case, whether the building of works will make it possible to compete in the long run against the large steel works. Even if the small plants still offer advantages in the production of high quality, there is nothing to render invalid the assumption that the discrepancy will be equalized by steady progress in working on a large scale.

The result of these considerations would be unfavorable to small plants, with the exception of a few cases affected by local conditions. For if the final effect of the inevitable contest with large works leads to a lowering of the price of steel and of intermediary products, then those works will undoubtedly have the greatest advantage which can reap the benefits of such a condition of affairs without having expended a capital for a plant and for experiments. There would be no occasion to point out these unfavorable prospects in the enlargement of a branch of industry if it were not for the fact that it is already driven to the highest point.

While these considerations affect particularly those industries devoted to the working of steel, the sale of ingots which the blast furnaces must look forward to has not as yet been successfully developed into a regular business. Nor is there very much hope of it, since the necessity of meeting the manifold requirements of customers as to quality becomes all the more difficult in the absence of the best opportunity of judging of it—the partial working in their own establishment. The production of partly manufactured goods, delivered to smaller consumers, is much easier to large steel works, because it is a subordinate manufacture. There are instances on record where works originally designed for exclusively producing partly manufactured steel afterward made arrangements to turn out the finished article.

These general considerations apply particularly to districts favorable to working on a large scale, but it does not follow that under other local conditions small Bessemer works may not prosper. In all cases, however, the question arises whether it is better adapted than other known methods of steel manufacture to the conditions given. The weight of these considerations upon works which are an adjunct to blast furnaces has been pointed out. But if certainty in the production of a given quality is to be greater than in the larger Bessemer works, then the uniformity in the composition and in the other properties of the pig iron must be greater in a correspondingly greater degree, especially when their influence upon the working with a small plant is a potent one. It is well known that to a certain extent fluctuations in the working of a blast furnace cannot be avoided. The Bessemer plant connected with it is always affected thereby. If it must be kept idle during the periods in the working of the furnace which are unfavorable to it, the question of selling the pig produced during that time becomes a difficult one, since the attention of the management is not directed to making it suitable for some specific purpose, but to bring back the furnace as soon as possible to the condition adapted to the manufacture of steel. It must be considered, furthermore, that the latter, when carried out in small converters, calls for requirements as to the character of the iron which, to say the least, are not conducive to increasing the regularityof its working. The means employed to counteract these drawbacks have not as yet met with the unqualified approval of metallurgists. Direct working has only been attended with success in the case of large vessels having great capacity, and the uniform quality of the charges is a second necessary condition.

Under the circumstances just referred to, the open-hearth process offers decidedly better prospects of success for a small output, because the requirement of a wide range in composition of the pig is met notably in basic working, and the pig can be tapped in larger quantities and at greater intervals. Until now the use in the charges of a heavy proportion of scrap has operated against working in connection with a blast furnace. In this direction, however, steady progress has been made, and is to be expected through the adoption of means to accelerate the process. The result is the increase in the capacity of the open-hearth furnace, which has developed from the former average of one charge in a shift to double that quantity. In producing especially mild metal the basic process offers great certainty in the results. In England, Belgium, France and Russia there are a large number of basic furnaces at work, and the favorable reports are well calculated to remove all doubt as to further success and a wider field. Through the increase in capacity, the unfavorable proportion of first cost to make disappears, as compared to small Bessemer works, and the simplicity and a long-assured success is well calculated to overcome any unfavorable balance in this respect.

The cost of a Bessemer plant, without real estate and buildings, is stated to amount to 60,000 to 70,000 marks per ton of charge, and its production of about 48 tons in 24 hours can be also attained by a 12-ton basic open-hearth furnace, the first cost of which, with a furnace in reserve, is not any higher. It is possible that the number of charges of the former may be increased. The present long life of the roof of a furnace and the little time required for repairs make it possible to run both the furnaces of a plant simultaneously with few interruptions, so that then the capacity of a small Bessemer plant is considerably beaten. In order to increase the latter it will always be necessary to resort to an increase in the weight of the charge. It is stated that this has already been done at Avesta, since now 1.2 to 1.5 ton vessels are used, and it is probable that this doubling in the weight is due to the endeavor to decrease the general costs.

It is necessary to wait for the results of a longer working period both for the small Bessemer works and for the basic open-hearth before being able to draw conclusions applying generally. Favorable results are reported as to quality of the product in both cases, but it requires more elaborate investigations in order to determine whether and to what extent there is any justice in the opinion, repeatedly expressed, that the physical properties of the metal vary more largely, according to the method of manufacture, than differences in the chemical composition seem to warrant.

The reports by Hupfeld, of Praevali, and Ehrenwerth, of Leoben, on the thorough study made partly at Praevali and partly at Avesta contain valuable material to judge of these questions, and Tunners's critical remarks have successfully furnished the impetus to further elucidation. The last reports on the results of the Clapp-Griffiths process in America have again thrown light on surprising discoveries.

It is said to be possible to produce by the Avesta process a mild metal which possesses

* Presented at the May (1885) meeting of the American Society of Mechanical Engineers.

in a higher degree the characteristic peculiarities of wrought iron than the kinds of steel thus far known. Its fracture shows a completely fibrous structure, and the well-known difficulties in welding are not met with at all or are encountered in a moderate degree only. The importance of such advantages cannot be denied, but if they are really obtained it is not yet clear why they should be secured only by working small quantities of pig in a Bessemer vessel. Before being generally accepted by steel makers, the assumption that the cinder mixed with the iron is the true and only cause must be fortified by proofs. There may be something in the assertion that the fibers and the grains of wrought iron have an envelope of cinder which aids its welding power. But it cannot be readily imagined that in casting a liquid mass of metal, covered with cinder over the rim of a vessel, so intimate and uniform a mixture be obtained of two substances whose density varies so much that thereby the characteristic properties are imparted uniformly to the chilled metal. If the steel had been in a thoroughly fluid condition, a complete separation of the cinder carried into the mold would undoubtedly take place. If that was not the case, but if the metal was approaching a pasty condition in consequence of low temperature, then the intermixture of cinder may be more easily explained. But even then it cannot be assumed that it was brought about during the casting in the mold, but more probably in the converter during the blow. This assumption would at least be more satisfactory in explaining the uniformity of the mixture. It would, furthermore, lead to making the origin of the formation of fiber and of the welding qualities independent of the presence of cinder, and would indicate as the cause the low temperature at the end of the blow in a manner similar to that in wrought-iron manufacture.

In the latter the presence of cinder is proven, but no final proof has been adduced to show that it is the cause of the properties alluded to. It may be assumed that, besides those particles of iron which have progressed furtherest in the carbonization, there are others with which that process has not developed so far. These keep the metal fluid and later furnish the plastic material which in working the metal when hot allows of the development of fiber.

If this assumption is correct, then as low a temperature as practicable in blowing would be the condition for producing fibrous, welding steel. In doing this the small converter possesses advantages over the larger one only so long as there are difficulties in casting a large quantity of mild metal, with its high melting point.

If this difficulty is overcome it would be necessary to choose the chemical composition of the pig iron, so that there is no excess of heat in the converter, while the oxygen in the blast has been fully utilized. Meanwhile the results obtained by the Clapp-Griffiths process in America, as reported by Messrs. J. P. Witherow, of Pittsburgh, and R. W. Hunt, of Troy, bring out new and startling points which center in the statement that the mild steel made shows satisfactory behavior as to tenacity and welding qualities, even with a high percentage of phosphorus. Mr. Hunt says, in the paper read before the American Institute of Mining Engineers, on February 25th:

"When first starting the works the best brands of English Bessemer irons were used, and the steel produced was of a most satisfactory quality. But I am assured that this grade of pig was continued for a very short time. Indeed, I am under the impression that altogether less than 100 tons of this iron was ever purchased for the works. The metal produced so far exceeded all requirements that the use of iron of a lower standard was ventured upon, hundreds of tons of ingots being made from pig carrying from 0.09 to 0.14 of phosphorus. The metal possessed an ever constant welding property, with great toughness. Being anxious to determine to what extent the use of high-phosphorus iron was possible, I first had a mixture tried which gave a metal with about 0.34 per cent. of that element. To my surprise this worked so well that I ventured further and doubled my proportion of high-phosphorus pig, obtaining a steel with 0.54 per cent. of phosphorus, and my surprise certainly did not decrease when I saw the test piece bend double cold and the metal work beautifully when hot."

Even for this the possibility of an explanation is better afforded by the approach to the mode of production of wrought iron than by the admixture of cinder. For it is well known that the influence of foreign substances upon the properties of iron is greater the more the mode of production is calculated to lead to a thoroughly intimate combination. Thus crucible steel is a brittle, useless metal when it carries 0.1 per cent. of phosphorus, while Bessemer steel may fulfill the requirements of many uses, and many a Bessemer rail may for years be faithfully doing service and be good for long life in spite of the assertion that it becomes worthless when the above limit has been passed. It is well known that wrought iron bears a considerably higher percentage of phosphorus before the fiber changes to that quality noted for its grain, which was especially in former years so much liked on account of its exceptional welding properties. But besides its fiber and its welding power wrought iron possesses properties which it has been impossible to impart to steel—*i. e.*, the absence of internal strains and its toughness, denoting with that term the property that a partial crack or fracture of a section does not imply that of the whole. These properties are of far greater importance for a good many uses than welding power, and neither analysis nor mechanical tests furnish a safe clew to its existence. So long as extensive investigation has not provided facts on the behavior of the new products in this direction, the crowding out of wrought iron by steel is out of the question.

The announcement was made recently with some flourish that Bessemer ores had been discovered in the South. Mr. H. S. Fleming, analytical and metallurgical chemist, of Chattanooga, Tenn., who analyzed the samples, writes to us that one was a Tennessee River ore, which carried 0.0969 phosphorus, and the other an ore from Alabama which had 0.1924 per cent. of that element. Mr. Fleming, agreeing with a number of ore merchants, holds that the ore in question came from a pocket low in phosphorus. Other samples of the same ore ran 0.531, 0.341, 0.328 and 0.712 per cent. of phosphorus.

Trade with the West Coast of Africa.

In a preliminary report to the State Department, Mr. Wm. P. Tisdel, agent to the States of the Congo Association, recommends most earnestly that Americans who contemplate establishing themselves on the Lower Congo, or anywhere on the West Coast of Africa, should not do so unless supplied with capital enough to compete with the long-established Dutch, English and German houses which control almost the entire trade of the West Coast. American houses must provide for transportation of their manufactured goods outward and of the products of the country homeward. They must locate factories or stations in different parts, engage help acclimated and familiar with the country and the natives, and able to speak both the Portuguese and Fiote languages. After this the Americans must make presents to chiefs of tribes in order to induce the natives to come to their factories to trade. All this takes time and money, and no return can be expected for at least a year.

At present the whole trade with the Congo country is practically in the hands of the following houses, each with many branches and their own lines of steamers and sailing vessels: First, the Dutch African Trading Company, of Rotterdam; second, Hatton & Cookson, of Liverpool; third, Congo and Central African Company, of Liverpool; fourth, the Hamburg African Company, of Hamburg; fifth, Daumas, Beraud & Co., of Paris. Agents representing American houses should apply to these firms at their European offices instead of going to the African coast. Mr. Tisdel says: "Whether or not the cotton goods of American manufacture can be laid down on the Congo and along the coast as cheaply as those from England I cannot say. Certainly we cannot produce them of a poorer quality than sample. But I am well satisfied that canned goods, common cutlery, ready-made wooden houses, lumber, medicine, beads and Yankee notions generally can be delivered to the traders along the coast at lower prices than they are now being invoiced from Europe. But how to reach these traders is the query. Doubtless the large traders would cheerfully examine American samples and prices, and if the American manufacturer can show a line of goods equal in quality and at a lower price than the European manufacturer I am sure that a trade can be established. At Bona I saw a wooden house which had been manufactured in Belgium, and the cost on the Congo was $15,000. That house could be duplicated for $2000, and could be delivered in Banana for $500 additional. In wooden houses alone there is undoubtedly an opportunity for a large business. The forests on the lower Congo and along the coast are dense, yet, as in Brazil, the traders send to Europe for lumber, as they have no wood-working machinery, nor is it possible at present to introduce it into the country. South of the Congo, in St. Paul de Loando, Benguela and Mossamedes, there is, in my opinion, an opportunity to place American goods of all kinds. The climate is not at all unlike that of our Southern States, and the requirements of the people are much the same as our own. There is a large population, and there are many rich commercial firms who would gladly trade with the people of the United States if communication could be established between the two countries. Proceeding north from the Congo, I found at St. Thome a possible market for American goods of all kinds. This is one of the richest islands in the world, densely populated, and might be made to produce everything required by the inhabitants, but they seem quite well satisfied with the production for export of coffee, sugar and palm oil, while all their supplies for wear or consumption, excepting fruit alone, come principally from London or Liverpool. I saw in one shop a case of American sheeting and blue jeans, which the proprietor informed me he had ordered especially through an English house.

Of Liberia I cannot write, but north of this Republic we come to Guinea, which country, though comparatively undeveloped, is one of great richness, producing, in addition to all the tropical products, gold, copper and wax of the finest quality known to the European trade. I visited Colama and Bissao, 75 miles in the interior, and I have never seen a country which offers such extraordinary inducements to the trader as this. English, German and French traders are already established there, and I learned that a Boston house had arranged for an agency in Bissao, to which place they propose running a sailing vessel monthly in connection with an already established line to the Cape de Verd Islands, between which and Boston a good trade is well inaugurated.

The Canary Islands, and Madeira also, offer inducements to the American merchant, and my firm belief is that, with agencies once established in the places herein named for the sale of American goods and the purchase of native products, a large and well-paying trade could soon be worked up, and that steamers constructed for cargo, with small passenger accommodation, would find profitable employment in monthly voyages from and to the United States via the Azores, Madeira, Canaries, Cape Verd and the West Coast of Africa.

The most valuable productions of Africa, and for which there is an ever-increasing demand, are rubber, palm kernels and palm oil, gum copal, ground nuts and wax. There is no limit to the quantity of these products which might be taken from the country if the natives could be induced to work. The country is densely populated, yet it is next to impossible to induce the natives to gather the valuable products of nature. The natives do not like the white man, but will work only for gin. The climate is dangerous to the whites of Europe and America, and great precautions are necessary against the poisonous influences of the malaria.

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Pattern Problems. 161

G H K, of Fig. 426, is presented one of the sets of conditions which necessitate a change of profile, in either the horizontal or raking molding, in order to accomplish a miter joint at the point indicated by I H in the plan. In other words, the conditions are such that with a given profile, as shown by A' in the raking molding, the horizontal molding forming the return will require to be modified, as shown by the profile A², in order to form a miter upon the line I H in the plan; or, if A² is established, A' will have to be constructed to correspond with A². The reason for this is quite obvious. The distance across the raking molding at right angles to its lines is greater than the corresponding distance across the return molding at right angles to its lines; therefore the projection in the cornice, as shown by the profile A², must be distributed through a smaller space than is shown in the profile A'. In this problem we assume that the pitch of the raking cornice B C is established and that the profile A is given, and from these parts it is required to develop the modified profile. We have the choice of placing the normal profile in the horizontal return and making the raking profile correspond with it, or of placing the normal profile in the raking molding and making the profile of the horizontal molding agree with it. Although the principle upon which these operations is performed is identical in both, the demonstration will be made clearer if each is fully illustrated independent of the other. In this problem and the following one, therefore, we show the several steps necessary to take in modifying the profile, and in cutting the several patterns required to form the structure indicated by the elevation and plan. First we will assume that the normal profile occurs in the raking cornice, and that the horizontal profile is to be modified to suit it. We then proceed as follows: Draw a representation of the normal profile in the raking cornice, as shown by A', placing it to correspond to the lines of the cornice, as shown. Draw another profile corresponding to it in all parts, directly above or below the foot of the raking cornice, in line with the face of the new profile to be constructed, placing this profile A so that it shall correspond with the lines of the horizontal cornice. Divide the profiles A and A' into the same number of parts, and through the points thus obtained draw lines, those from A' being parallel to the lines of the raking cornice, and those from A intersecting them vertically. Through these points of intersection trace a line, which gives the modified profile, as shown by A². Then A² is the profile of the horizontal return, indicated by G H I F in the plan. It is also the elevation of the miter line I H of the plan for the several patterns involved. We therefore proceed as follows: At any convenient point at right angles to the lines of the raking cornice lay off the stretchout M N of the profile A', through the points in which draw measuring lines in the usual manner. Place the T-square at right angles to the lines of the raking cornice, and,

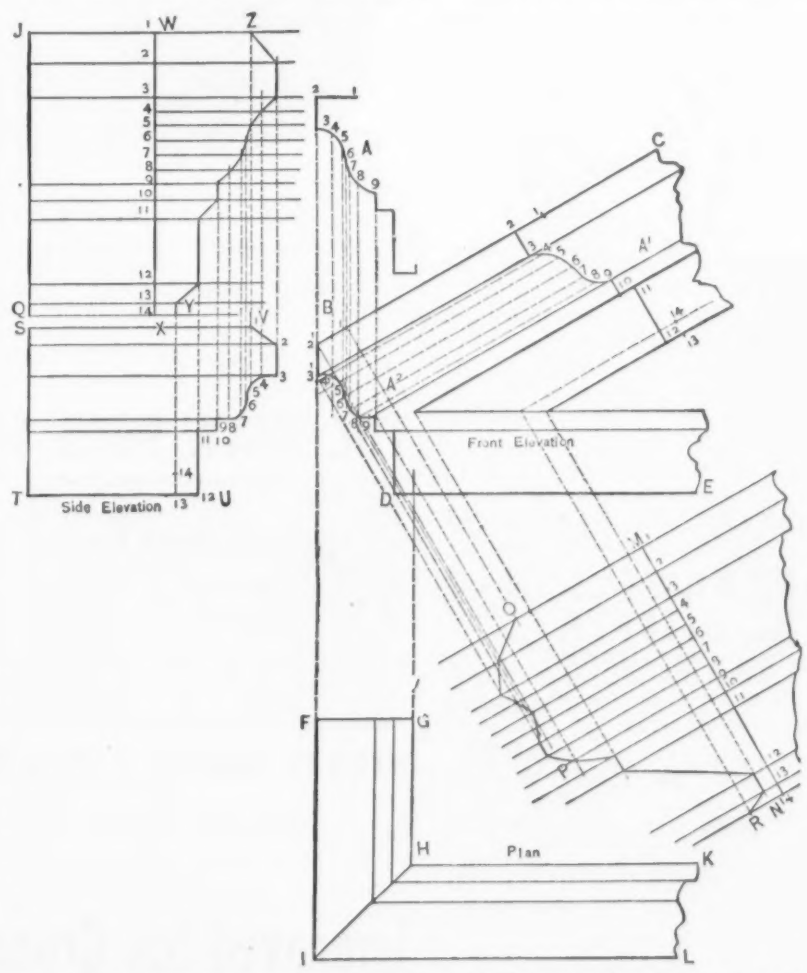

Fig. 426.—To Ascertain the Profile of a Horizontal Molding Adapted to Miter with a Given Inclined Molding at Right Angles in Plan, and the Several Miter Patterns Involved.

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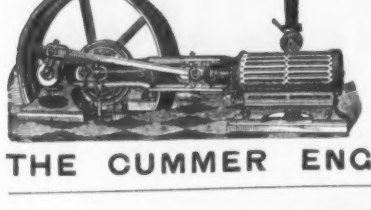

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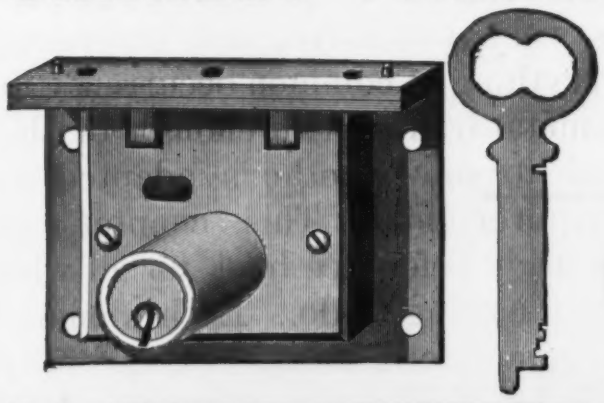

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The Swing is constructed on original mechanical principles. The frame is so interlocked as to be prevented from sagging, even if the bolts are loose, a feature not possessed by any other swing manufactured. There are two sizes manufactured, adapted for both lawn and parlor. No. 1, or largest size has standards 9 feet 10 inches long, with a spread of about 9 feet, and 5 feet in width. The frame work is so constructed that by taking out two bolts the standards will close up, and by taking out the bolts of the two cross pieces the frame can be closely folded ready for shipping. The Swing can be put up or taken down ready for packing in 10 minutes.

The weight of the Swing is a little less than 100 pounds It is very strong, having been tested by four men whose weight aggregated over 800 pounds.

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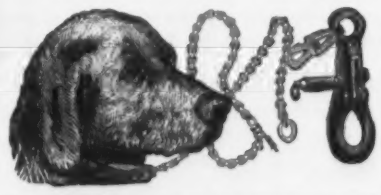

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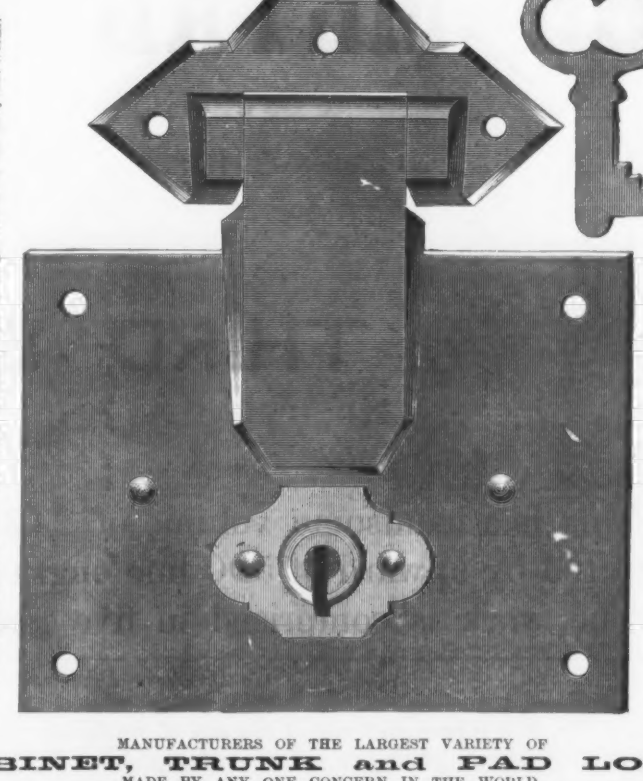

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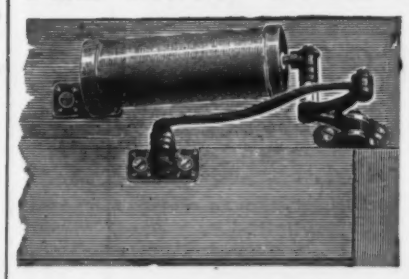

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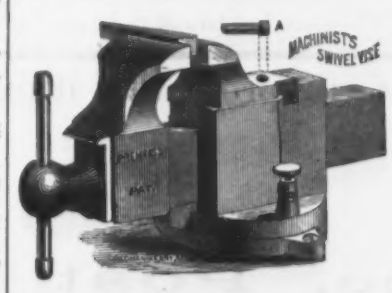

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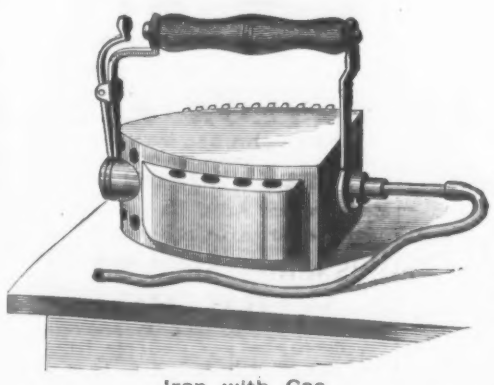

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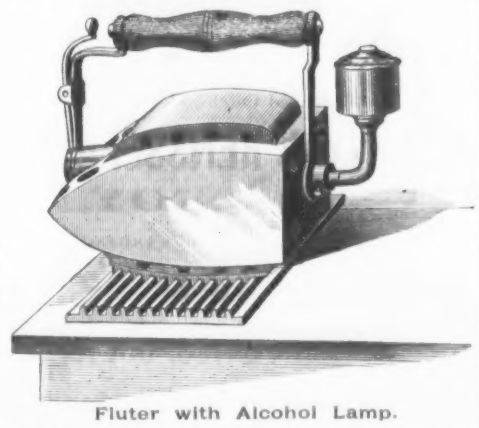

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Awarded the only GOLD MEDAL at the New Orleans Cotton and Centennial Exposition over all Sad-Iron Competitors.

We invite your attention to the following FACTS, which state the advantages our *Sad-Iron* has over all others:

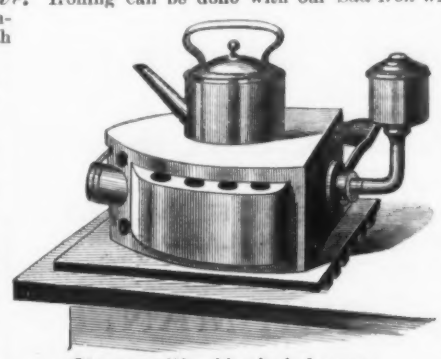
All persons occupying a whole house or only a room will at once appreciate the benefit derived by having an iron that ***does not require the heat of a range or stove.*** Ironing can be done with our *Sad-Iron* without the great hardship of standing all day near a hot range, thus saving not only considerable time, trouble and ***fuel,*** but health and strength as well.

To heat our iron, gas or any alcohol can be used, and the iron will be ready in five minutes or less.

One of our irons does the work of an entire set of ordinary irons, as it is reversible (one side heats while the other is in use), thus saving the time and labor that is now consumed in going to and from the range.

Besides the great advantages above referred to, our iron is also a first-class *Fluter, Polisher* and *Iron Stand* (as can be seen by the cuts), which are all heated at the same time the iron is, and thus *are always* ready for use.

By simply placing the handle on either side of the Iron, it will make the best little Cooking Stove for a sick-room ever invented, heating so rapidly that hot water or necessary warm appliances can be got ready within a few minutes.



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As our iron does not come in contact with a range it is always clean, and, being all nickel-plated, it presents a neat appearance anywhere, and its merits as a polisher are increased.

Our iron is neither heavier nor larger than the common one in use, and there is absolutely no danger from fire in lighting and handling it, nor can the contents of the lamp be spilled.

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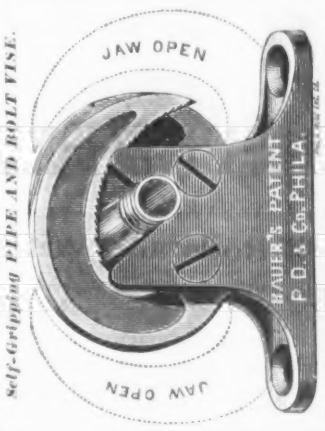

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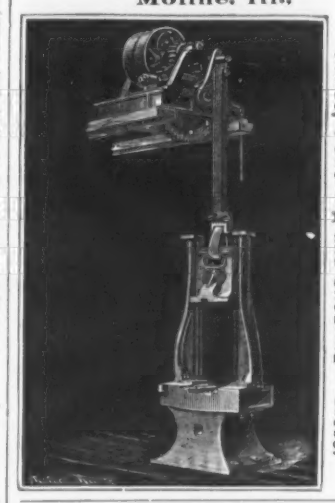

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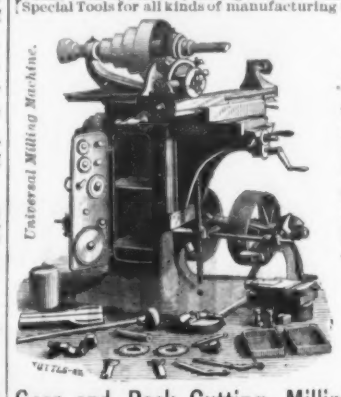

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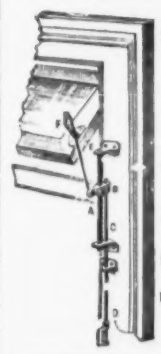

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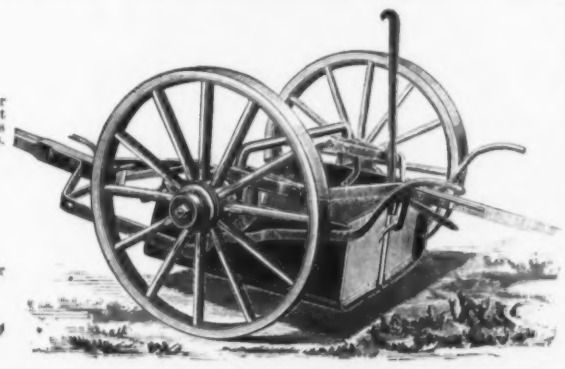

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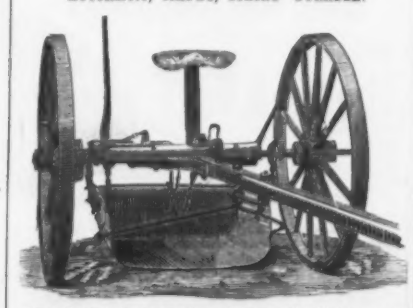

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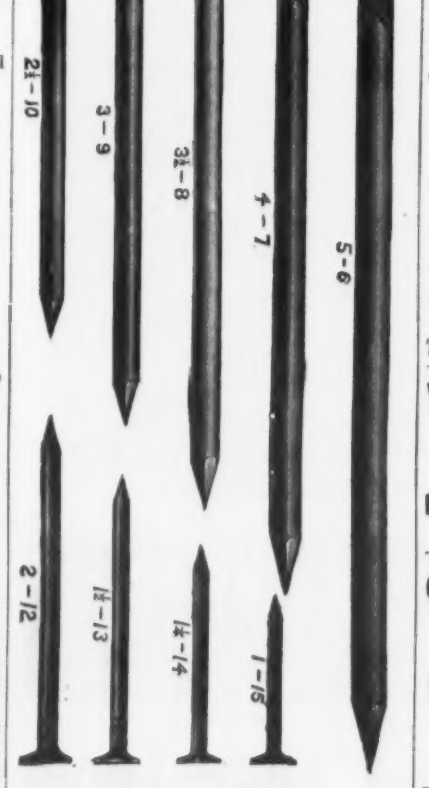

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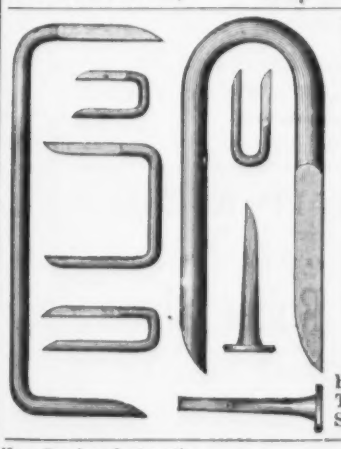

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From 1-4 to 3¼ in.

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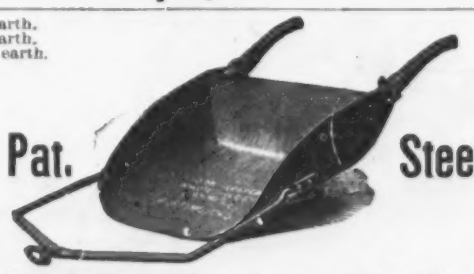
Runners Patented February 11th, 1884.

The York Pat.



Steel Scraper.

The Lightest and Strongest Scraper made. The body is made of one single piece of steel. *The Handles are fastened inside of fold, and free from all obstructions.* The body, bail and runners are all made of steel. Especially suited for contractors. Send for circulars. Manufactured by

THE YORK MFG. CO., Limited, Portsmouth, Ohio.

GLENN'S Patent Balanced

Hydraulic and Steam Valves.

For Controling Machinery on Men of War, Ship Board, Docks, Elevators, Rolling Mills and Steel Mills, &c.

For additional information and prices address

J. S. GLENN Manufacturer, 115 Fremont St., Chicago, Ill.

THE STANDARD TOOL CO.,

Manufacturers of Straight Lip Increase Twist Drills & Special Tools.

CLEVELAND, OHIO.

R. MUSHET'S Special Steel

FOR

LATHES, PLANERS, &c.

Turns out at least **double work** by increased speed and feed, and **cuts harder metals** than any other Steel. Neither hardening nor tempering required.

Sole Makers,

SAMUEL OSBORN & CO.,

Sheffield, England.

Represented in the United States by

B. M. JONES & CO.,

Nos. 11 & 13 Oliver Street, **BOSTON.**

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99 John St., New York,

IMPORTERS OF

STEEL AND IRON RAILS,

Steel Tires and Axles, Tin and Terne Plates.

Swedish and Norway Iron.

Bessemer Steel and Iron WIRE RODS,

Pig Iron, Spiegeleisen, Ferromanganese, Scrap Steel and Old Iron Rails.

SELLING AGENTS

FOR

Norway Steel and Iron Company, SOUTH BOSTON.

Manufacturers of

STEEL COMPRESSED SHAFTING

"Benzon" Homogeneous Plates

For Boilers, Fire-boxes, &c.

SPRING STEEL,

And all other kinds of

Martin-Siemens Steel and Iron.

The Iron-Masters' LABORATORY.

Exclusively for the

Analysis of Ores of Iron, Pig and Manufactured Iron, Steels, Limestone, Clays, Slags and Coal for Practical Metallurgical Purposes.

No. 339 Walnut St., Philadelphia.

With Branch at Warrenton, Virginia,

J. BLODGET BRITTON.

This laboratory was established in 1866, at the instance of a number of practical Iron Masters, expressly to afford prompt and reliable information upon the chemical composition of the substances above mentioned, for smelting and refining purposes, the object being to make it at once a convenient, practically useful, and comparatively inexpensive adjunct to the Furnace, Forge and Rolling Mill.

Cut one-half size.

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Geo. W. Jones & Co., No. 4 Hanover St., New York City
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YOUNGSTOWN, OHIO.

A. PARDEE, Hazleton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,

237 South Third Street,

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MINERS AND SHIPPERS OF

Lehigh Coals.

The following superior and well-known Lehigh Coals are mined by ourselves and firms connected with us, viz.:

A. Pardee & Co. { HAZLETON, CRANBURY, SUGAR LOAF.
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PEUGEOT FRÈRES,

MANUFACTURERS OF

Finest Grades of Steel

FOR WATCH, CLOCK AND OTHER SPRINGS,

Band Steel for Saws for Metal and Wood. Steel for all Mechanical Uses. The "Lion" Brand of Band Saws Best and Cheapest Made.
Correspondence Solicited.

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AGENTS FOR UNITED STATES AND CANADA

26 WARREN STREET, NEW YORK.

BENEDICT'S PAT. WINDOW SCREEN

is an Oil-Print Linen Gauze, plain and figured, mounted on a Hartshorn Spring Roller, the edges moving in grooved mouldings on the sides of the window.

Flies and mosquitoes are effectually excluded.

The following **advantages** over all other kinds of **Screens** will be apparent:

The whole window is covered.

Either Sash may be opened or both at the same time, thus securing better ventilation.

More easily handled, working as easily as an ordinary Shade.

Does not interfere with either Shade, inside Shutter or outside Blind.

May be rolled up and left in place all winter; but if desirable to remove, comes out as readily as a shade, and occupies but little space.

Costs less, will last longer and is more easily renewed than any other good screen.

Illustrative cuts and prices may be obtained by addressing

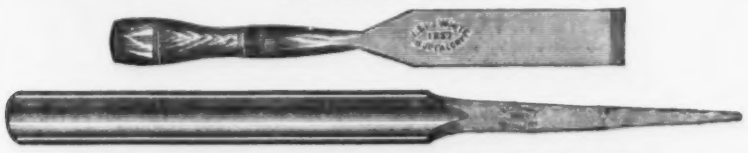
THE BENEDICT

Patent Rolling Window Screen Co.,

Box 702. ASBURY PARK, N. J.

State Rights for sale.

ESTABLISHED 1837.



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MANUFACTURERS OF

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Coopers', Carpenters' and Ship Tools, Cleavers, &c.

FULL LINE CHISELS.

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MANUFACTURER AND SHIPPER OF

CONNELLSVILLE COKE

Capacity of Mines, 2500 Tons Daily.

Siding connections with all lines of Railroads.

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STEPHENS & CO., Riverton, Conn., Manufacturers of

U. S. Standard Boxwood & Ivory Rules.

Also, Exclusive Manufacturers of L. C. STEPHENS' PATENT COMBINATION RULE.

Send for Price List. Established in 1854.

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Porcelain, Mineral & Jet Knobs & Escutcheons.

Send for Price List and Terms. OFFICE, 385 5th Ave., N. Y.

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FIRE BRICK.

BEST AND CHEAPEST.

Established 1845.

Office, foot of Houston Street, East River, NEW YORK.

NEWTON & CO.,

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MANUFACTURERS OF BEST QUALITY

FIRE BRICK

AND

STOVE LININGS.

M. D. VALENTINE & BRO.,

MANUFACTURERS OF

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And Furnace Blocks.

DRAIN PIPE AND LAND TILE,

Woodbridge, - - N. J.

BORGNER & O'BRIEN,

MANUFACTURERS

FIRE BRICK

AND

Edge Pressed Furnace Blocks,

CLAY RETORTS, TILES, &c.,

Twenty-third Street,

Above Race, *PHILADELPHIA.*

Twenty years' practical Experience.

ESTABLISHED 1848.

TROY FIRE BRICK WORKS,

Troy, N. Y.

James Ostrander & Son,

MANUFACTURERS OF

FIRE BRICK,

Tiles, Blast Furnace Blocks, &c., and in a *Special Department Linings* for *Stoves, Ranges* and *Heaterso* superior quality. Miners of and dealers in Woodbridge, N. J., Fire Clay and Fire Sand and Staten Island Kaolin.

ESTABLISHED 1864.

JAMES GARDNER,

Successor to GARDNER BROS.,

MANUFACTURER OF

"STANDARD SAVAGE" FIRE BRICK, TILE & FURNACE BLOCKS,

OF ALL SHAPES AND SIZES

Miner and Shipper of "Mount Savage" Fire Clay.

WORKS, Ellerslie, Allegheny Co., Md.

MAIN OFFICE, Cumberland, Md., P. O. Box 93.

BRANCH OFFICE, Pittsburgh, Pa., P. O. Box 373.

S. H. Hamilton & Co., Agents, Baltimore, Md.

UNION MINING COMPANY.

Mount Savage Fire Brick.

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999 South Third St., Philadelphia, Pa.

BIRMINGHAM FIRE BRICK WORKS.

All dimensions constantly on hand. **Fire Bricks, Fire Shapes, Kaolin, Fire Brick Cement, Fire Clay, Fire Sand** for Furnaces; Coke Ovens, Stoves, Boilers, and for the Southern Trade generally.

STEVENS & FENTON, Prop'rs,

Birmingham, Ala.

AIKIN & LIGHTON,

Iron City Foundry and Machine Works,

SOLE MANUFACTURERS OF

AIKIN'S IMPROVED

PATENTED

SAND MOULDING MACHINE

BIRMINGHAM, ALABAMA.

CORRESPONDENCE SOLICITED.

AMHERST THE WATER BEST. MOTOR

Parties looking for a noiseless, economical and efficient Power will do well to send for descriptive *Catalogue, free.*

Amherst Hydraulic Motor Company,

HOLYOKE, MASS.

Self-Binders' for The Iron Age.

We are now prepared to supply our subscribers with an excellent self-binder for their papers, a cut of which is annexed. We call attention to the low prices at which it is offered. Address all orders to

DAVID WILLIAMS,

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Prouty's Patent

PEERLESS FORCE PUMP

HAS

Self-Adjustable Foot Rest.

NEW AUTOMATIC COMPENSATING PACKING.

It will throw a continuous jet FROM FORTY TO SIXTY FEET. A new pattern jet and spray nozzle is sent with each Pump.

Especial attention is called to the material and workmanship exhibited in these Pumps.

THE NEW ENGLAND BUTT CO.

PROVIDENCE, R. I.

NEW YORK OFFICE, 99 Chambers St.

"ECLIPSE"

Pipe-Cutting Machines,

MANUFACTURED BY

PANCOAST & MAULE,

243 & 245 South Third St.,

PHILADELPHIA,

ARE

EFFICIENT,

POWERFUL,

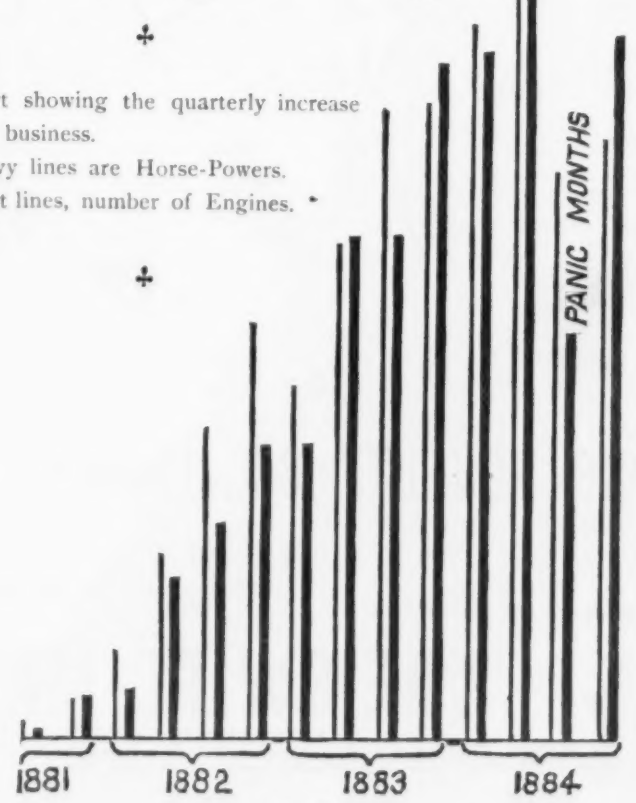
CHEAP

The Westinghouse Engine

Chart showing the quarterly increase of our business.

Heavy lines are Horse-Powers.

Light lines, number of Engines.



SOME FACTS.

Up to May 1st, '85, TWENTY-ONE PER CENT. of our sales have been *bona fide* REPEATED ORDERS (2 to 12) from actual users (not agents), and do not include about twenty-five exchanged engines, all of which are counted as single sales. About half of the exchanges were from defective engines—the balance for increased power or automatic cut-off, the difference being paid in many cases. From 800 to 1000 have displaced other engines. On the contrary, we know of but three parties who, having bought one Westinghouse Engine, have failed to give us their subsequent orders. We have learned of but six second-hand engines being offered for sale, all of which were either from fire or failures. Nine engines (our earliest) were thrown back on our hands altogether. This is our record, with about 1500 engines running.

SEND FOR ILLUSTRATED CIRCULAR AND REFERENCE LIST.

The Westinghouse Machine Co.,

PITTSBURGH, PA.

SALES DEPARTMENT CONDUCTED BY

WESTINGHOUSE, CHURCH, KERR & CO., 17 Cortlandt Street, New York.
FAIRBANKS, MORSE & CO., Chicago, Cincinnati, Cleveland, Louisville and St. Paul.
FAIRBANKS & CO., St. Louis, Indianapolis and Denver.
PARKE & LACY, San Francisco, and Portland, Oregon.
PARKE, LACY & CO., Salt Lake City, Utah and Butte, Montana.
D. A. TOMPKINS & CO., Charlotte, N. C.
KEATING IMPLEMENT & MACHINE CO., Dallas, Texas.
ROBERT MIDDLETON, Mobile, Ala.
H. DUDLEY COLEMAN, 9 Perdido Street, New Orleans, La.
IMRAY & CO., Sydney and Melbourne, Australia.
R. ROGERS, 43 Rue Lafitte, Paris.
F. E. AVERILL, Delft, Holland.

PHILADELPHIA.

Lloyd & Supplee Hardware Co.

Terms, 30 days. For 60 or 90 days, interest added at 8 per cent. per annum.

Anvils.
Peter Wright's, ₩ ℔ ... 9⅛ @ 10¢
Trenton ... 9½¢
Eagle Anvils, American, 10¢ ... dis. 20 %
Apple Parers.
Penn Apple Parers ... 5.50 net
White Mountain ... 5.50
Lots of 10 to 25 dozen, special prices.
Axes.
Hunt's Kentucky and Yankee, ₩ doz. net $6.50@7.00
William Mann, ₩ doz. net ... 6.50@7.00
Favorite ₩ doz. net ... 5.50@6.00
Beveled Axes ... add 50¢
Double Bit Axes, net ... $12.00
Augers and Auger Bits.—New List January 7, 1880.
Snell's Augers and Bits ... dis 60@60&5 %
New Haven Copper Company ... dis. 70 %
Benjamin Pierce Auger Bits ... dis. 40 %
Jennings' Auger Bits, new list Jan. 1, 1884..dis.. 25 %
Cook's Auger Bits and Augers ... dis 55 %
Snell's Ship Augers ... dis 20 %
Watrous' Ship Augers ... dis. 15 %
Bonney's Pat. Hol. Augers, list $48 ₩ doz dis 33⅓@40 %
Stearns' Pat. Hol. Augers, list $48 ₩ doz...dis. 20&10 %
Balances.
Light and Common ... dis. 40&10 %
Bells.
Bevin Bros. Mfg. Co. Light Hand Bells....dis. 80 %
Light Hand Bells ... 80 %
Swiss Pattern Hand Bells ... 60 %
Connell's Door Bells ... dis. 20&10 %
Gt. Western & Kentucky Cow, new list ... dis. 70 %
Boring Machines
Upright, without Augers.....List, $5.50 } dis....50&5 %
Angular, without Augers.....List, 6.75 }
Bolts.—Eastern Carriage Bolts, new list, June 10, 1884 ... dis. 80&5@80&7½ %
Philadelphia Carriage Bolts new list, dis 75&10@80 %
Stanley, Wrought Shutter ... dis. 50, 10, 10&5 %
Braces.—Barber's Improved ... dis. 40@40&5 %
Barber's Old Style ... 50 %
Backus, Polished ... dis. 50&10&10 %
Backus, Nickeled ... dis. 50&10 %
Spofford ... dis. 50&5 %
American Ball ... dis. 55&10 %
Amidon Improved ... dis. 60@60&10&5 %
Amidon Corner Brace ... dis. 40 %
Butts.—Cast Fast Joint, Narrow ... dis.60&10 %
Cast Fast Joint, Broad ... dis.60&10 %
Cast Loose Joint, Narrow ... dis. 70&10 %
Cast Loose Joint, Broad ... dis. 70&10 %
Cast Acorn, Loose Pin ... dis. 70&10 %
Cast Acorn, Japanned ... dis. 70&10 %
Cast Mayer's Loose Joint ... dis. 70&10 %
Wrought Loose Pin.....dis. 60&10&10@60&10&10&5 %
Wrought Table Hinges and Back Flaps..dis. 60&10 @ 60&10&10 %
Wrought Loose Joint..dis. 60&10&10@60&10&10&5 %
Wrought Narrow Fast.......dis. 60&10 @ 60&10&10 %
Blind Butts.
Parker ... dis. 75&2 %
Clark ... dis. 80 %
Shepard ... dis. 80 %
Lull & Porter ... dis. 80&10 %
Huffer's ... dis. 50 %
Casters.—Bed (new list July 1, 1880).dis. 60@60&10 %
Plate ... dis 60@60&10 %
Chains.—German Halter and Coil, list June, 1884 ... dis. 55 @ 55&5 %
Galvanized Pump ... ₩ ℔ 5¾@6¼¢ net
Best Proof Coil Chain—English.

₩ ℔	9¼	6¾	5¾	5¼	5	4¾
	3-16	¼	5-16	⅜	7-16	½

Chisels.—Socket Framing ... dis 75&10@75&10&5 %
Socket Firmer ... dis 75&10@75&10&5 %
Butcher's ... $5.00@$5.25 to £ gold
Coffee Mills.—Box and Side (new list Jan. 1. 1880 ... dis 40 @ 40&10 %
Enterprise ... dis 20&10 %
Cutlery.—Walden Pocket ... new list net
Pennsylvania Knife Co ... new list net
Landers, Frary & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.
Door Hangers.—Cronk Barn Door Hangers...No. 4, $12.00; No. 5, $14.00; No. 6, $18.,00.dis. 50&5@50&10 %
Drawing Knives.
Bart Mfg. Co.'s ... dis. 75&10@75&10&5 %
Adjustable Handle ... dis 20@20&5 %
Fry Pans.
Tinned ... dis 45 %

₩ doz...	$3.50	4.00	4.50	5.00	5.50	6.50	7.50	9.00	10.00
No.	0	1	2	3	4	5	6	7	8

Burnished ... dis. 70@70&5 %

₩ doz....	$3.00	3.75	4.25	4.75	5.25	6.00	7.00	8.00	9.00
No.	0	1	2	3	4	5	6	7	8

Files.
Nicholson ... dis 60 %
Disston ... dis 60 %
Butcher ...
Crown and Arrow ... 60&5@60&10 %
Fluting Machines.
Eagle—3½ in. roll ... each, $2.15 } dis 35 %
Eagle—5½ in. roll ... each, 2.85 }
Crown—4½ in. roll ... each, 3.50 }
Crown—6 in. roll ... each, 4.00 } dis 35 %
Crown—8 in. roll ... each, 6.50 }
Geneva Fluter ... dis 25 %
Favorite com. Fluter and Sad Iron..₩ doz., $10.50 net
Hammers.
Yerkes & Plumb's, new list ... dis 40&10 %
Maydole Hammers ... dis 15&10 %
Howell A. E. Nail Hammers ... ₩ doz., net $3.75
Handles.
Disston Loop Handles Cross-Cut ... 33¢ pair net
Boynton Loop Handles Cross-Cut ... 33¢ pair net
Hatchets.
Yerkes & Plumb, new list ... dis 40&10&5 %
Hunt ... dis 40 %
Hay and Straw Knives.
Lightning ... ₩ doz.. $18.00 dis. 10@10&5 %
Electric ... ₩ doz.. 18.00 dis. 30 %
Wadsworth ... ₩ doz., net 35&5 %
Walton Straw Knives ... ₩ doz., net 17.00
Hinges.
Strap and T ... dis 65&10 %

Horse Nails. Nos.	5	6	7	8	9	10	
Globe	26	23	21	20	19	18	dis 10&5&5 %
Ausable	30	27	25	24	23	22	dis 25&10 %
Pol'ed and P't'd & Blued & P't'd.	31	28	26	25	24	23	dis 25&10 %
Clinton		23	21	20	19	18	dis 25&10 %
" Pol'ed & P't'd.		24	22	21	20	19	dis 25&10 %
Saranac	26	23	21	20	19	18	dis 20 %

Locks and Knobs.
Branford Locks ... 66⅔&2 %
Gaylord Cabinet ... dis 40&2 %
Parker's Cabinet ... dis 40&2 %
American Padlocks ... dis 66⅔&2 %
Scandinavian Padlocks ... dis 50 %
₩ doz..$5.00 5.50 6.50 7.50 8.50 10.00 12.50 } dis 60 %
No. ... 57 58 59 60 61 62 63
₩ doz ... $18.00 26.00 33.00 } dis 60 %
No ... 64 65 66
Lanterns.
Buckeye ... large list, net; small list, net
Tubular ... No. 0, $7.50; No. 1, $9.00 ₩ doz. net
Guards 40¢ extra.
Lawn Mowers.—Pennsylvania / Philadelphia / Excelsior / Continental / Quaker City } 40&5 % 3 % cash 30 days.
Lawn and Garden Pumps.
Holland Patent ... list, $5.00, dis 10 %
Mattocks.
Long and Short Cutter ... new list, 60&10 %
Pennsylvania Pattern ... dis 60& 10 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.dis. 20&10 %
Stebbins' Gates ... dis. 80 %
Lincoln's Gates ... dis. 70&10 %
Landers, Frary & Clark's Petroleum ... dis 40&5 %
Brass Liquor Cocks new list Jan. 1, 1880.dis.. 65&5 %
Cork Lined Cocks ... dis. 70 %
Meat Cutters.
Dixon's ... dis. 40 %
Woodruff ... dis. 40 %
Stowe ... dis. 40 %
Hale's ... new list. dis. 60, 10&2 cash
American ... dis 35 %
Stuffers ... dis. 40 %
Enterprise Stuffers ... dis. 20&10 %
Planes.—Sandusky Tool Co ... dis. 20&2 %
Ogonts ... dis. 25&2 %
Ohio and Auburn ... dis. 20&2 %
Bailey (S. R. & L. Co.) ... dis. 20&10 %
Plane Irons.—Ohio Tool Co ... dis. 20&10 %
Butcher's ... $5.00 @ 5.25 to £
Plumbs and Levels.
Stanley's Adjustable ... dis. 70&10 %
Stanley's Non-Adjustable ... dis. 70&10 %
Picks.—New list ... 60&5@60&10 %
Razor Strops.
Lamont Combination ... ₩ doz. $4.00
Lamont Combination ... 1 gross lots $42.00
Imitation Emerson ... ₩ doz. $2.00
Lamoille, 1 doz. lots ... $3.50 net
" 1 gro. " ... $38.00 net
Rules.—Stanley Boxwood ... dis. 80@10 %
Stanley Ivory ... dis. 55 @55&10 %
Steelyards.—Hart's Pattern dis ... 40&10@50 %
Per doz ... $14.50 17.75 21.00 26.50 31.00 35.50
Lbs ... 50 100 150 200 250 300
American Pattern ... dis. 40&10@50 %
Per doz ... $8.00 10.25 13.75 15.60 16.75 19.50
Lbs ... 50 100 150 200 250 300
Scale Beams ... 60@60&5 %
Casters ... 25 %
Squares.
Steel and Iron.dis. 60& 10 %; full casedis. 60&10&5 %
Try Squares, Stanley ... dis 60&10 %
Disston's Try Squares ... dis 45&10 %
Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened ... ₩ doz $9.00 }
Clipper No. 10, Bronzed Blade, Boxed and Sharpened ... ₩ doz $8.50 } 40
Clipper No. 5, Painted Red, Boxed and Sharpened ... ₩ doz $8.00 }
Saws.—Disston's Hand, Panel and Rip....dis 20&10 %
Disston's Circular ... dis 45&10 %
Cross-Cut No. 2, Plain Tooth ... dis 45&10 %
Cross-Cut Patent Tooth ... dis 45&10 %
Cross-Cut Champion Tooth ... dis 45&10 %
Shovels and Spades.
Oliver Ames & Sons, new list ... dis 20 %
Griffiths ... dis 50&10@60 %
Rowland ... dis 60&5@60&10 %
Sad Irons.—4 to 10 ℔ ... ₩ ℔ 2¼@2½¢
Mrs. Potts' Patent ... dis 40 %
Stone.
Washita Extra ... ₩ ℔ 16¢
Washita No. 1 ... ₩ ℔ 13½¢
Washita No. 2 ... ₩ ℔ 10¢
Washita Slips ... ₩ ℔ 28¢
Washita Axe ... ₩ ℔ 13¢ net
Hindostan Oil Stone No. 1 ... ₩ ℔ 6¢. dis. 40 %
Hindostan Axe Stone ... ₩ ℔ 8¢. dis. 40 %
Hindostan Slips ... ₩ ℔ 10¢. dis. 40 %
Screws.—Parker List.
Flat Head Iron ... dis 85 %
Flat Head Brass ... dis 85 %
Round Head Brass ... dis 83⅓ %
Round Head Iron ... dis 85 %
Spoons.
Plated ... dis 50&5&5 %
German Silver ... dis 40&10@50 %
Britannia, Boardman's ... dis 60 %
Britannia, Parker's ... dis 60&10 %
Tinned ... dis 10 %
Springs.—Torrey ... dis 50 %
Gem No. 3 small Japanned ... $2.00 } dis 50&10 %
Gem No. 2 medium Japanned ... 2.75 }
Coil No. 10 ₩ gross net ... $5.50@6.00
Other Standard Springs ... dis 50&10@60 %
Warner Door Springs, ₩ doz. $2.50 ... dis 40&10 %
Standard Spring Hinges—
Single No. 0, ₩ doz. net ... $1.10@1.25
Single No. 1, ₩ doz. net ... 1.25@1.50
Other Standard Spring Hinges ... dis 25&10@40 %
Stocks and Dies ... dis 10 and 5 %
Stove Polish.—Gem ... ₩ gross, $4.50, dis 5 %
Dixon ... 6.00, dis 10 %
Fire Fly ... $3.00 gross, net
Tacks ... Combination discounts
Shoe Nails—4-8, and over, 5½¢ } 10 %
Shoe Nails—3½-8, and under 7¢ }
Double Pointed Tacks ... dis 75&10&5 %
Traps.
Genuine Oneida—Newhouse ... dis 35 %
Im. Oneida—Newhouse list. First qual.dis 60&10&10 %
Vises.—Solid Box. Trenton new list..dis 50&10@60 %
Wrenches.—Agricultural ... dis 75&10&5 %
Coes' Genuine ... dis 60&3 %
Coes' Mechanics' ... dis 60&10&3 %
Coes' Mechanics,' Mall. Bar ... dis 80 @ 80&5 %
Wire.
Bright or Annealed, No. 0 to 18 ... dis 70@70&5 %
Bright or Annealed, No. 19 to 26 ... dis 70@70&5 %
Bright or Annealed, No. 27 to 36 ... dis 75@75&5 %
Coppered, 0 to 18 ... dis 65&5 %
Tinned Broom Wire ... dis 65 %
Galvanized Barb Wire ... 5½¢
Painted Barb Wire ... 4½¢
Galvanized, No. 7 to 18...Market List, dis ... 60 %
Wringers.
Peerless No. 2½ ... $30.00
Peerless No. 2 ... 33.00
Universal No. 2½ ... 30.00
Universal No. 2 ... 33.00
Novelty No. 2, for common tubs ... 30.00
Novelty No. 3, " " ... 34.50
Excelsior E, for stationary tubs ... 39.00
Excelsior F " " ... 43.50
} dozen lots $3.00 per dozen.

PITTSBURGH.

Merchant Iron.

TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 ₩ cent. for cash, if remitted within 10 days from date of invoice.

For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report.

The following are card rates.

Flat Bar.
1⅛ to 4 by ⅜ to 1 inch ... 2.0¢
4¼ to 6 by ⅜ to 1 " ... 2.1¢
1¾ to 6 by 1⅛ to 1¼ " ... 2.4¢
1¼ and 1⅜ by ⅜ to ¾ " ... 2.1¢
1 and 1⅛ by ⅜ to ¾ " ... 2.2¢
⅝, ¾ and ⅞ by ⅜ to ⅝ inch ... 2.4¢

Rounds and Squares.
1 to 1⅞ ... 2.0¢ | ⅝ to 9-16 ... 2.2¢
2 to 2⅝ ... 2.2¢ | ½ to 7-16 ... 2.4¢
2¾ to 3¼ ... 2.5¢ | ⅜ ... 2.6¢
3⅜ to 4 ... 3.0¢ | 5-16 ... 2.8¢
4¼ to 5 ... 3.5¢ | ¼ ... 3.0¢
⅝ to ⅞ ... 2.1¢ | 3-16 ... 5.0¢

Oval Iron.
⅞ to 1⅛ ... 2.4¢ | ½ ... 2.8¢
⅝ to ¾ ... 2.6¢ | ⅜ ... 3.2¢

Half Oval and Half Round.
⅞ to 1¼ inch ... 2.7¢ | ¼ inch ... 3.5¢
⅝ to ¾ " ... 3.2¢ | ⅜ " ... 5.0¢

Horse Shoe.
⅝ to 1⅛ by 5-16 to ¾ inch ... 3.0¢

Wagon Box Iron.
¾ inch, Nos. 13 and 14 ... 3.2¢
¾ " " 11 and 12 ... 3.0¢
⅝ " " 13 and 14 ... 3.5¢
⅝ " " 11 and 12 ... 3.3¢
½ " " 13 and 14 ... 3.9¢
½ " " 11 and 12 ... 3.6¢

Heavy Bands.
3½ to 6 by ¼ and 5-16 inch ... 2.2¢
1⅛ to 3¼ by ¼ and 5-16 " ... 2.2¢
1 to 1⅜ by ¼ and 5-16 " ... 2.3¢
¾ to ⅞ by ¼ and 5-16 ... 2.5¢
⅝ and ½ by ¼ and 5-16 " ... 3.0¢

Light Bands.
1⅛ to 6 by ⅛ to 3-16 ... 2.5¢
1⅛ to 6 by Nos. 11 and 12 ... 2.6¢
1 to 1⅜ by ⅛ to 3-16 ... 2.6¢
1 to 1⅜ by Nos. 11 and 12 ... 2.7¢
⅞ and 13-16 by ⅛ to 3-16 ... 2.9¢
⅞ and 13-16 by Nos. 11 and 12 ... 3.0¢
¾ and 11-16 by ⅛ to 3-16 ... 3.2¢
¾ and 11-16 by Nos. 11 and 12 ... 3.3¢
⅝ and 9-16 by ⅛ to 3-16 ... 3.5¢
⅝ and 9-16 by Nos. 11 and 12 ... 3.6¢
½ inch by ⅛ and 3-16 ... 3.8¢
½ inch by Nos. 11 and 12 ... 3.9¢

Hoop Iron.
1⅛ to 4, Nos. 13, 14 and 15 ... 2.8¢
1⅛ to 2, Nos. 16, 17 and 18 ... 2.9¢
1⅛ to 2, No. 19 ... 3.0¢
1⅛ to 2, No. 20 ... 3.1¢
1⅛ to 2, No. 21 ... 3.2¢
1⅛ to 2, No. 22 ... 3.3¢
15-16, 1, and 1⅛, Nos. 13, 14 and 15 ... 3.0¢
15-16, 1, and 1⅛, Nos. 16, 17 and 18 ... 3.1¢
15-16, 1, and 1⅛, Nos. 19 and 20 ... 3.2¢
15-16, 1, and 1⅛, No. 21 ... 3.3¢
15-16, 1, and 1⅛, No. 22 ... 3.4¢
⅞, Nos. 13, 14 and 15 ... 3.2¢
⅞, Nos. 16, 17 and 18 ... 3.3¢
⅞, Nos. 19 and 20 ... 3.4¢
⅞, No. 21 ... 3.5¢
⅞, No. 22 ... 3.6¢
13-16, Nos. 13, 14 and 15 ... 3.4¢
13-16, Nos. 16, 17 and 18 ... 3.5¢
13-16, Nos. 19 and 20 ... 3.6¢
13-16, No. 21 ... 3.7¢
13-16, No. 22 ... 3.8¢
¾, Nos. 13, 14 and 15 ... 3.5¢
¾, Nos. 16, 17 and 18 ... 3.6¢
¾, Nos. 19 and 20 ... 3.7¢
¾, No. 21 ... 3.8¢
¾, No. 22 ... 3.9¢
11-16, Nos. 13, 14 and 15 ... 3.7¢
11-16, Nos. 16, 17 and 18 ... 3.8¢
11-16, Nos. 19 and 20 ... 3.9¢
11-16, No. 21 ... 4.0¢
11-16, No. 22 ... 4.1¢
⅝, Nos. 13, 14 and 15 ... 3.9¢
⅝, Nos. 16, 17 and 18 ... 4.0¢
⅝, Nos. 19 and 20 ... 4.1¢
⅝, No. 21 ... 4.2¢
⅝, No. 22 ... 4.3¢
⅝, No. 23 ... 4.4¢
9-16, Nos. 13, 14 and 15 ... 4.1¢
9-16, Nos. 16, 17 and 18 ... 4.2¢
9-16, Nos. 19 and 20 ... 4.3¢
9-16, No. 21 ... 4.4¢
9-16, No. 22 ... 4.5¢
9-16, No. 23 ... 4.6¢
½ inch, Nos. 13, 14 and 15 ... 4.3¢
½ inch, Nos. 16, 17 and 18 ... 4.4¢
½ inch, Nos. 19 and 20 ... 4.6¢
½ inch, No. 21 ... 4.7¢
½ inch, No. 22 ... 4.8¢
½ inch, No. 23 ... 4.9¢

The prices under Hoop Iron do not apply to Cotton Ties.

1-10¢ ₩ ℔ extra will be charged for each gauge lighter than the lightest indicated.

1-10¢ ₩ ℔ extra will be charged for cutting Hoops to specified lengths.

Barrel Hoops.
1¼ to 2 in., cut to length.
9 to 11 ℔, ₩ set of 6 hoops ... 3.0¢
8 ℔ and less than 9 ℔, ₩ set of 6 hoops ... 3.1¢
Less than — ℔, ₩ set of 6 hoops ... 3.2¢

Extras for Cutting to Length all Preceding Iron.
All Iron, including Tire ... 1.10¢

Tank Iron.
No. 9 and heavier ... 2.8¢
Plow Slabs ... 3.0¢
Plow Wings ... 3.3¢

Sheet Iron.	Common.	Charcoal.	Juniata.
Nos. 10 to 14	3.0¢	4.5¢	6.0¢
Nos. 15 to 17	3.3¢	4.8¢	6.3¢
Nos. 18 to 21	3.6¢	5.1¢	6.6¢
Nos. 22 to 24	3.8¢	5.3¢	6.8¢
Nos. 25 and 26	4.0¢	5.5¢	7.0¢
No. 27	4.2¢	5.7¢	7.2¢
No. 28	4.6¢	6.1¢	7.6¢

All sheets No. 18 and lighter, over 30 inches wide, not less than 2.10¢ extra.

Wood's Patent Planished Sheet.
1st quality (A) ... 10¢ | 2d quality (B) ... 9¢

Galvanized C. H. B.—(Charcoal Hammered Blooms.)
Nos. 14 to 20 ... 12¢ | No. 27 ... 15¢
Nos. 21 to 24 ... 13¢ | No. 28 ... 16¢
Nos. 25 and 26 ... 14¢ | No. 29 ... 18¢
60 @ 62½ % discount.

Coal Screen Iron.
1⅜ by ⅜ by 5-16 ... 2.5¢ | 1 by ⅜ by 5-16 ... 3.0¢

Angle Iron.
2¼, 3, 3½ and 4 inch ... 2.8¢
1½, 1¾, 2 and 2¼ " ... 2.8¢
1¼ inch ... 2.9¢
1 " ... 3.1¢
1⅛ by 1 inch, for Plow Handles ... 3.3¢
1⅛ by ⅞ " " ... 3.3¢
1⅛ by ¾ " " ... 3.4¢

T Rail.
8 lbs. to the yard ... 2.4¢ | 20 lbs. to the yard ... 2.2¢
12 " " ... 2.3¢ | 28 " " ... 2.3¢
16 " " ... 2.3¢ | 30 " " ... 2.3¢

Splice Joints for 12, 16 and 20 ℔. Rail, 30¢ each; 28 and 30-℔. Rail, 40¢ each; 40-℔., 50¢ each.
3½ by ⅜ and ½ Spikes for 20 and 28-℔. Rail ... 3½¢
2½ and 3 by ⅜ " " 12 and 16-℔. " ... 3.5¢
2½ by 5-16 " " 8-℔. Rail ... 4.0¢

Flat Rails.—Punched and Countersunk.
1½ to 2 by ½ to ⅝ inch ... 2.5¢
1⅜ by ⅜ and 7-16 inch ... 2.7¢
1¼ by ⅜, 7-16 and ½ inch ... 3.0¢

Juniata Nail Rods ... 6.0¢
Norway Nail Rods ... 7.5¢
Guard Iron, ¼x¾x⅝ and ½x⅝x⅝ ... 3.5¢
Guard Iron ⅜x⅝x9-16 and ½x⅝x½ ... 3.7¢
Drag Bars ... 2.8¢
Dropper Bars ... 3.3¢
Cylinder and Landside Iron ... 2.7¢
Plow Beam Iron ... 2.5¢

Nails.
See Pittsburgh Trade Report.

Best Quality Refined Cast Steel.
Square, Flat, Octagon and Round.
⅜ to 2 inches, inclusive ... 8½¢
1-16 and 2⅛ to 3 inches ... 9½¢
¼ and 3⅛ to 4 " ... 10½¢
7-32 and 4⅛ to 5 " ... 11½¢
3-16 and 5⅛ to 6 " ... 14¢
5-32 inch ... 18¢
⅛ " ... 25¢
Oil Well Steel Forgings ... 18¢

Machinery Steel.	Crucible	Bessemer & Open Hearth.
Ordinary Sizes, ⅜ to 2 inch Round	4½¢	3¢
5-16 and 2⅛ to 3 inches	5½¢	4¢
¼ and 3⅛ to 6 "	6½¢	5¢
7-32 inch	7½¢	6¢
3-16 "	9¢	8¢

Square, Flat and Octagon, ½¢ extra throughout the list.
Cut to specified lengths, ½¢ extra.

Hammer Cast Steel.
Crucible Cast Steel ... 5¢
Open Hearth Cast Steel ... 4¢

Sheet Steel.—Crucible.	Best.	2d Qual.	3d Qual.	Bessemer & Open Hearth.
To 21 gauge...	9½¢	8½¢	6½¢	5¢

1¢ extra for each additional gauge.
Cut to multiples or specified lengths, ½¢ extra.

Miscellaneous Cast Steel.
Auger and Auger Bit ... 3¢
Axle Steel for carriages and wagons ... 3¢
Frog Points and Plates ... 5½¢
Frog Side Bars ... 5¢
Pick, plain (hammered) ... 5¢
Pick and Mattock, beveled (rolled ... 3¢
Skate Steel ... 4½¢
Table Cutlery, plain ... 3½¢
Table Cutlery, beveled ... 4¢
Pike and Cant Hook ... 7¢
Coal and Granite Wedge ... 7¢
Roller ... 5½¢
Spindle, subject to Machinery classification ... 5½¢
Trap Spring Steel ... 6¢
Forged Crank Pins and Lathe Spindles ... 7½¢
Piston Rods, plain ... 4¢
Piston Rods, forged to shapes ... 7½¢
Slide Bars, plain ... 5¢
Slide Bars, forged to shapes ... 7½¢

Open Hearth or Bessemer
Boiler, Fire-Box and Flue Sheets, not less than 3-16 thick ... 4¢
Boiler, Fire-Box and Flue Sheets, not less than ⅛ thick ... 5¢
Circulars and semi-circulars, when ordered separately ... 6¢
Smoke Stack, to shape ... 5¢
Locomotive Tank Steel ... 4¢

File Cast Steel.
Square, Round, Half Round and Flat Bastard, 8 inch and over ...
Mill Saw, 8-inch and over ... 5¢
Taper, 3½-inch and over ... 6¢
Horse and Shoe Rasp ... 5¢

Spring Cast Steel ... 4½¢
Spiral, Taper, cut to lengths ... 5½¢

Tire Cast Steel.
1x¼ and over ... 6½¢
1x3-16, ⅞x3-16 and ¼ ... 7¢
1 and 13-16x⅛ and 5-32, ¾x3-16 and 5-32 ... 9¢
¾ and ⅝x⅛ and 3-32 and 12 g ... 10¢
Solid Safe Cast Steel ... 4¢
Three and Five Ply Cast Steel ... 5¢

Agricultural Implement Cast Steel.
Fork and Rake, Crucible ... 4½¢
Horse Rake Steel, cut to lengths, Crucible ... 5¢
Hoe, Crucible ... 5¢
Corn Stalk Cutter, beveled ... 4½¢
Beveled Hoe and Shovel Steel in Bars ... 4½¢
Crucible Plow Steel in Slabs ... 4½¢

Bessemer and Open Hearth.
Spring ... 2½¢
Spring spiral and taper, cut to lengths ... 3½¢
Tire, 2-16 thick and above ... 2½¢
Toe Calk ... 2½¢
Plow ... 2½¢
Axle Billets ... 2 ¢
Sleigh Shoe ... 2½¢
Cutter Shoe, cut to lengths and tapered ... 3¢
Scythe Back Steel ... 3½¢
Grain Drill Bars ... 2½¢
Grain Drill Points ... 3½¢
Rolling Coulter Blanks, cut and punched ... 6¢
Thrasher Steel ... 2½¢
Thrasher Teeth ... 3½¢
Rolled Hammer Billets ... 2½¢
Terms.—Four months · 3 per cent. discount for cash if remitted within 30 days.

Rolls and Castings.
Furnace Floor and Straightening Plates ... 1¾¢
Housings and Castings not otherwise specified ... 2⅛¢
Guide Plates ... 2¾¢
Spindles and Coupling Boxes ... 1¾¢
Sand Rolls and Pinions, large size ... 2 ¢
Sand Rolls and Pinions, small size ... 2⅛¢
Pipe Mill Castings ... 3 ¢
Rolling Mill Castings under 50 ℔ ... 2 ¢
Spur and Bevel Wheels, large ... 3½¢
Spur and Bevel Wheels, small ... 4 ¢
Pulleys up to 30 inches ... 4 ¢
Pulleys over 30 inches ... 3½¢
Engine Castings, light ... 3¼¢
Engine Castings, heavy ... 2¾¢

White and Red Lead.
Strictly Pure White Lead in Oil, in Kegs 6¢ ₩ ℔; in 25 ℔ Cans, packed in 100 ℔ cases, ½¢, and 12½ ℔ cans 1¢ over keg price; in 1 to 5 ℔ Cans, assorted, in 100 ℔ cases, 2½¢ over keg price.
Strictly Pure Dry White Lead in kegs ... 6¢ ₩ ℔
Strictly Pure Red Lead *extra bright and fine*, in kegs 6¢
Strictly Pure Litharge, *powdered, extra fine*, in kegs 6¢
Orange Mineral, *True*, in barrels ... 7½¢
" " " in 100 ℔ kegs ... 7¾¢
A discount of 3% will be deducted from Invoice on purchase of 500 ℔ and upward.
Terms: Note or acceptance at 60 days or less, 2½ % for cash if paid within 15 days from date of invoice.
Freight equalized with all points where White Lead is made.

Window Glass.
Discount,—75% *Single Strength* 75 & 10% *Double*. Prices current, ₩ box of 50 feet.

Single Strength.

United Inches	Sizes.	AA.	A.	B.	C.
25	6 x 8 to 10 x 15	$8.75	$8.00	$7.50	$7.00
39	11 x 14 to 15 x 24	9.25	8.50	8.00	7.25
48	16 x 24 to 20 x 28	10.75	9.75	8.75	7.75
54	15 x 34 to 24 x 30	12.25	10.75	9.00	....
60	26 x 28 to 24 x 36	13.00	11.50	9.75	....
70	26 x 36 to 26 x 44	14.50	13.25	10.75	....
80	26 x 46 to 30 x 50	15.00	14.00	11.25	....
84	30 x 52 to 30 x 54	....	....	....	....
90	30 x 56 to 34 x 56	....	....	....	....
94	34 x 58 to 34 x 60	....	....	....	....
100	36 x 60 to 40 x 60	....	....	....	....
	Double Strength.				
25	6 x 8 to 10 x 15	13.25	12.25	11.25	10.50
39	11 x 14 to 15 x 24	14.50	13.25	12.50	11.25
48	16 x 24 to 20 x 28	17.25	15.75	14.00	....
54	15 x 34 to 24 x 30	19.75	17.25	14.50	....
60	26 x 28 to 24 x 36	*21.00	18.50	15.75	....
70	26 x 36 to 26 x 44	23.25	21.25	17.25	....
80	26 x 46 to 30 x 50	24.00	22.50	18.00	....
84	30 x 52 to 30 x 54	25.75	23.25	19.25	....
90	30 x 56 to 34 x 56	27.75	25.00	21.75	....
94	35 x 58 to 34 x 60	29.25	27.75	24.00	....
	36 x 60 to 40 x 60	33.25	30.00	27.75	....

Sizes above — $10 ₩ box extra for every 5 inches.

An additional 10 per cent. will be charged for all glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

Hubbard, Bakewell & Co.'s Goods.
Axes, Single Bit, Lippincott ... per doz., $7.25
Axes, Single Bit, James & Co ... per doz., 6.75
Axes, Double Bit, Lippincott ... per doz., $13.00
Axes, Double Bit, James & Co ... per doz., 10.00
Drain Tools, list ... dis 20 %
Hoes, Planters' ... dis 60 %
Hoes, Scovill Pattern ... dis 60 %
Hoes, Handled, Square Eye, German ... dis 50 %
Handles, Cross Cut ... per doz., $2.50
Handles, Shovel, Bent, Bored, Riveted..per doz., 2.25
Saws, Circular ... dis 45 %
Saws, Long ... dis 40 %
Saws, Cross-Cut, H. B. & Co., Champion, per foot net ... $0.30
Saws, Cross-Cut, Lippincott, Champion, per foot net ... $0.27
Shovels, list ... dis 20 %
Spades, list ... dis 20 %
Scoops, list ... dis 20 %

BOSTON.

Reported by Bigelow & Dowse.

Anvil & Vise.—

	10	20	30	40	
Cheney	$3.50	4.50	5.50	6.50	dis 25 %

Eagle, Fisher & Norris, No. 00, $1.75; 0, $2.25; 1, $2.75; 2, $3.25; 3, $4.00; 4, $4.50; 5, $5.25; 6, $6.00; 7, $6.50; 8, $7.25; 9, $8.25.

100 ℔ and over 10¢ ℔ ..... dis. 20 %

Augers & Bitts.—
L'Hommedieu's Ship Auger ..... dis 15 %
Jenning's Bitts ..... dis 25 %
Cook's Bitts ..... dis 50 %
Shepardson's Double-Cut Bitts ..... dis 45 %
Shepardson's Double Gimlets ..... dis 40 %
Stearn's Extension Hollow Augers—
No. 2, ℔ doz., $48; No. 3, ℔ doz., $60 list ..... dis 20 %
Bonney's Extension Hollow Augers ..... ℔ doz $36.00
Pierce's Bitts ..... dis 50 %
Griswold Bitts ..... dis 60&10 %

Axes.—Blue Jackets ..... ℔ doz $7.50
Dowse Handled Boys' ..... dis 35 %

Ax Handles.—
Oak Extra, 31 in., No. A ..... ℔ doz $2.50
Oak Extra, 34 in., No. A ..... ℔ doz 2.50
Oak Extra, 31 in., No. B ..... ℔ doz 2.00
Oak Extra, 34 in., No. B ..... ℔ doz 2.00
Oak Extra, 31 or 34 in., No. C ..... ℔ doz 1.40

Axle Clips ..... dis 50 %

Balances.—Chatillon's ..... dis 40 %

Barn Door Rail.—
Cast Angle (for Anti-Friction Hangers) ..... ℔ ft., 2¢
Cast Half Round ..... ℔ ft., ⅜, 2½¢; ¾, 3¢
Wrought Round ..... ℔ ft., ⅜, 3¢; ⅝, 4¢; ¾, 6¢

Bells.—Connel's Crank Gong, reduced list.. dis 20&10 %

Bird Cages.
Japanned M. B. & D., reduced list, 1879 ..... dis 40 %
Brass M. B. & D. reduced list, 1879 ..... dis 33⅓ %

Blind Fasts.
No. 6 Fasts ..... ℔ C sets 6.00
Veazie Fasts ..... ℔ C sets 6.00
Shedd's ..... ℔ C sets 6.50

Blind Hinges.—Mall. Hook, 3 holes.. ℔ C sets 7.00

Blocks.—Tackle ..... dis 30 %

Brad Awl Handles.—
Phœnix Adjustable ..... ℔ doz $2.00

Bolts.—Norway Iron Carriage ..... dis 75 %
Common Carriage, new list ..... dis 75&10 %
Eagle Carriage ..... dis 75 %

Borax.—Refined ..... ℔ ⅞ 12¢

Boring Machines.—
Eagle Upright, each ..... $5.50 list } dis 50 %
Eagle Angle, each ..... 6.75 list }

Braces.—Barber's ..... dis 40&5 %
Spofford's ..... dis 50&5 %
Packer's ..... dis 50&5 %

Bracket Saws.—Holly Scroll Saw ..... each $2.25
Bracket Saws, extra quality, to No. 5 ..... ℔ gro. 0.75
Steel Frame, with patterns ..... ℔ doz 6.00
Lester ..... dis 20 %
New Rogers, all iron ..... dis 25 %

Bracket Saw Blades.—Griffith's pat., ℔ gross 70¢

Brackets.
H. B. & M. Flower Pot, reduced list ..... dis 40&10 %
Bronzed Shelf M. B. & D., new list ..... dis 50&10 %
Store Shelf ..... dis 40&10 %

Butts.—Union Fast Joint ..... dis 60&10 %
Union Loose Joints ..... dis 70&10 %
Union Japanned Acorn ..... dis 70&10 %
Union Silvered Acorn ..... dis 70&10 %
Union Boston Finish ..... dis 70&10 %
Union Spiral Spring ..... dis 25&10 %
Wrought Brass ..... dis 70 %

Carriage Bolts.—Eagle Norway ..... dis 75 %
Common, new list ..... dis 70&10 %

Carriage Jacks.—Climax No. 1 ..... ℔ doz $20.00
Climax No. 1¼ ..... ℔ doz 15.00
Climax No. 2 ..... ℔ doz 13.50
Universal ..... dis 25 %
Universal No. 1 ..... each $2.00
Universal No. 2 ..... each 3.00
Universal No. 3 ..... each 6.00
Universal No. 4 ..... each 6.50
Universal No. 5 ..... each 6.50

Cartridges.—U. S. Cartridge Co ..... dis 60 %

Cards
Watson's make Horse & Curry ..... dis 10 % } Rev. List.
Watson's Cotton ..... dis 10 % } Aug., 1883.
Watson's Wool ..... dis 10 % }

Casters.—Bed and Table ..... dis 50&10 %

Chain.
Coil 3-16 ..... ℔ ℔ 9¢
Coil ¼ ..... ℔ ℔ 7¢
Coil 5-16 ..... ℔ ℔ 6¢
Coil ⅜ ..... ℔ ℔ 5¢
Coil 7-16 ..... ℔ ℔ 5¢
Coil ½ ..... ℔ ℔ 5¢

Chalk.—White, Carpenter's ..... ℔ gross 60¢
Red, Carpenter's ..... ℔ gross 80¢
Blue, Carpenter's ..... ℔ gross $1.00
Crayons ..... 12¢

Chisels.—Peck, Stow & Wilcox ..... dis 70&10 %
Underhill, Framing ..... dis 35 %
Buck's Chisels ..... dis 30 %

Coal Hods.—"Dover."—Galv'd, New List.. dis 60 %
Japanned, New List ..... dis 60 %

Cocks.—Brass. L. F. & Co ..... dis 50&10 %

Coffee Mills.—New List ..... dis 40 %

Copper Rivets.— ..... dis 50 %

Cordage.—Manila, usual trade dis 1¢ ..... ℔ ℔ 14½¢
Jute ..... ℔ ℔ 8¢

Cow Ties. ..... dis 50 %
No. 30 3 ft. No. 6 Wire, with toggle ..... ℔ doz $3.80
No. 35, 3 ft. No. 6 Wire, with snap ..... ℔ doz 4.00
No. 40, 3½ ft. No. 6 Wire, with toggle ..... ℔ doz 4.30
No. 45, 3½ ft. No. 6 Wire, with snap ..... ℔ doz 4.50
No. 50, 4 ft. No. 4 Wire, with toggle ..... ℔ doz 4.75
No. 55, 4 ft. No. 4 Wire, with snap ..... ℔ doz 5.00
No. 60, 4½ ft. No. 3 Wire, with toggle ..... ℔ doz 5.60
No. 65, 4½ ft. No. 3 Wire, with snap ..... ℔ doz 5.80

Crow Bars.—Cast Steel ..... ℔ ℔ 7¢
Iron Steel-pointed ..... ℔ ℔ 6¢

Cutlery.—Pocket American Shear Co.'s ..... dis 40 %
Butcher Knives, Wood's, Lap Bolster, Square Handle ..... dis 40
Steak Knives ..... dis 40 %
Lap Bolster, Oval Handle ..... dis 40 %
Sticking ..... dis 40 %
Skinning ..... dis 40 %
Butcher, Common Round Handle, Wood's ..... dis 40 %
Shoe Knives, Wood's ..... dis 30 %

Dividers.—Cook's ..... dis 25 %

Dog Collars. ..... dis 20 %

Door Springs.—Torrey Rod ..... ℔ doz $1.62
Imitation Torrey's Rod ..... ℔ doz 1.45
Gem Coil, new list ..... dis 50&10 %
Crown ..... ℔ doz $1.2
Warner's ..... ℔ doz 1.75

Door Stops.—Thurston's ..... dis 50 %

Drawer Knobs.—Thurston's ..... dis 50 %

Drills.—Morse Bitt Stock } dis 40 %
Morse Straight Shank }

Emery.—Wellington Mills ..... ℔ ℔ 10¢
Walpole Emery Mills ..... ℔ ℔ 5¢
Turkish, in 10 ℔ cans ..... ℔ ℔ 7¢

Enameled Ware.—
Standard Mfg. Co. Kettles ..... dis 60 %
Standard Sauce Pans ..... dis 30 %

Felloe Plates.—Wrought ..... ℔ ℔ ¢

Files.—American File Co ..... dis 60 %
Nicholson File Co ..... dis 60 %

Fluting Machines.—Knox List, $4.00 ..... dis 25 %

Forks.—W. C. & Co. Manure ..... dis 50 %
Eastern Tool Co.'s. Manure ..... dis 60 %

Gimlet Bits.—
Genuine German, No. 125, 1-32 to 8-32 ..... ℔ doz $1.00
Pierce's ..... ℔ doz .88

Glass Cutters.—Combination Glass Cutter and Knife Sharpener ..... ℔ doz $1.00

Grub Hoes.—K. P. & Co.'s No. 2, $11.50 ℔ doz. dis 50 & 10 %

Hammers.—Maydole's ..... dis 15 %
Hartford Hammer Co ..... dis 20 %

Hangers & Rollers.—Anti-Friction ..... dis 50 %
Acme Rollers ..... dis 50 %
Climax ..... dis 50 %
Common Hangers ..... dis 50&10 %
Common Rollers ..... dis 50&10 %
Victor Hangers ..... dis 50 %
Victor Rail ..... dis 50 %

Hand Screws. ..... dis 10 %

Hatchets.—C. F. Dowse, new list ..... dis 35 %
Underhill ..... dis 35 %

Hay Knives.—Lightning ..... ℔ doz $18.00, net

Hinges.—Strap and T (new list) ..... dis 65&10 %
Providence Plate ..... ℔ ℔ 5 ¢
Wrought Screw Hook ..... ℔ ℔ 5 ¢

Hoes.—Eastern Tool Co ..... dis 60&10 %
W. C. & Co.'s ..... dis 60 %

Hooks and Staples.—Brewers (new list)... dis 70 %

Horse Nails.

	No. 6	7	8	9	
Putnam Pointed	.24	.22	.21	.20	5&7 %
Bridgewater	.23	.21	.20	19.	30 %

Ice Cream Freezers.—Packer's, new list. dis 50&10%

Knobs.—"Norwalk." New list ..... dis 66⅔ %
Silver Glass ..... dis 50&10 %
Silver Glass Bell Pulls ..... dis 50&10 %

Lanterns.—Tubulars, No. 0 ..... ℔ doz $7.50

Lawn Mowers.
Continental ..... dis 40&10 %
Quaker City ..... dis 40&10 %
National ..... dis 50 %

Lead.—Sheet ..... ℔ ℔ 6 ⅝¢
Pipe ..... ℔ ℔ 5⅝¢

Locks.—Norwalk ..... dis 66⅔ %
Eagle Cabinet ..... dis 40 %
Eagle Trunk ..... dis 15 %
Mallory, Wheeler & Co ..... dis 66⅔ %

Manure Forks.—W. O. & Co ..... dis 50 %
Eastern Tool Co.'s ..... dis 60 %

Mattocks.
K. P. & Co., Long Cutter, $16.00 ℔ doz ..... dis 50 & 10 %
K. P. & Co., Short Cutter, $15.50 ℔ doz ..... dis 50 & 10 %
K. P. & Co., Pick Cutter, $16.00 ℔ doz ..... dis 50 & 10 %

Measuring Tapes.—Eddy's ..... dis 20 %

Meat Cutters.—Miles' Challenge ..... dis 30 %
Hale's (new list) ..... dis 40&10 %
American ..... dis 33⅓ %

Money Drawers.—Tucker's Alarm ..... ℔ doz $22.50

Mouse Traps.—Delusion ..... ℔ doz 1.25
Noveity ..... ℔ doz

Nails. ..... ℔ keg

Oilers.—Zinc and Tin ..... dis 60 %
Brass and Copper ..... dis 50 %

Ox Bows.—Extra finished and varnished ..... dis 15 %
1¼ in., ℔ doz. pair ..... $7.00 | 2 in., ℔ doz. pair $10.00
1⅝ in., ℔ doz. pair ..... 9.00 | 2½ in., ℔ doz. pair .. 12.00

Paper.—Common Tarred Sheathing ..... ℔ ℔ 1¾¢
Eagle Brand Tarred Sheathing ..... ℔ ℔ 2 ¢
Common, Dry Sheathing ..... ℔ ℔ 1¾¢
Eagle Brand Dry Sheathing ..... ℔ ℔ 2¾¢

Picks.—K. P. & Co., Adze Eye, 5 to 6 ℔ $12.00. dis 50 & 10 %
K. P. & Co., Adze Eye, 6 to 7 ℔ $13.00 ..... dis 50 & 10 %

Planes.
Auburn Tool Co., Bench ..... dis 20 %
Auburn Tool Co., Fancy ..... dis 15 %
Auburn Tool Co., English Iron ..... dis 15 %
N. Y. Tool Co., Bench ..... dis 25 %

Plated Ware.—Rogers & Bro ..... dis 50 %

Pliers.—Vom Cleff & Co ..... net list
Button's Wire Pliers ..... dis 33⅓ %

Plumb & Levels.—Stanley R. & L. Co.. dis 70&10 %

Potato Diggers.—W. C. & Co., reduced list. Eastern Tool Co.'s ..... dis 60 %

Pulleys.—Acme or Excelsior, 1¾ in ..... ℔ doz 22¢
Acme or Excelsior, 2 in ..... ℔ doz 24¢

Pumps.—Union Manufacturing Co.
Iron Cistern ..... dis 50 %
Iron Pitcher Spout ..... dis 60 %
Copper ..... dis 30 %

Rivets.—In 50 ℔ papers ..... dis 45 %
Burrs ..... dis 50 %
Copper ..... dis 50 %

Razors.—Torrey's ..... dis 20 %

Rules.—Stanley, Boxwood ..... dis 75&10 %
Stanley, Ivory ..... dis 50&10 %

Sad Irons.—Common ..... ℔ ℔ 3¢
Laundry ..... ℔ ℔ 6¾¢
Tailors' Geese ..... ℔ ℔ 6 ¢
Enterprise "Potts'" ..... dis 35 %

Sash Locks.—King & Hutchinson's, new list. dis 40 %

Sandpaper.—Baeder & Adamson ..... dis 40 %

Sash Weights.—Patent Eye ..... ℔ ℔ 1¼¢

Saws.—Hand Saws, Disston's ..... dis 20 %

Cross-Cut Saws.
Disston's, Common Tooth ..... ℔ foot 68¢, dis 45 %
Disston's Great American Tooth.. ℔ foot 68¢, dis 45 %
Boynton's Lightning Tooth ..... ℔ foot 45 %
M. B. & D., Hand Saws ..... dis 33⅓ %
Richardson Bros ..... dis 25 %

Saw Blades.—Disston ..... dis 20 %
Welch & Griffith, Extra ..... ℔ doz $7.20
Welch & Griffith, No. 2 ..... ℔ doz 6.00

Scales.—Fairbanks ..... dis 20 %

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Flat-Head Iron ..... new list, dis 85 %
Flat-Head Brass ..... new list, dis 85 %
Round-Head Brass ..... new list, dis 80 %
Round-Head Iron ..... new list, dis 60 %
Grilley Round-Head Nickel-Plated Common.. dis 60 %

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Shaves.—Kimball's ..... ℔ inch 7½¢
Watrous ..... dis 20 %

Shears.—American Shear Co., new list ..... dis 70 %

Shot.—Tatham's ..... ℔ ℔ 6¢

Shovels.—O. Ames, new list ..... dis 20 %
O. Ames, other brands, new list ..... dis 20 %

Sinks.—Magee Patent ..... dis 30 %

Snow Shovels. $3.75

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Union Roller ..... dis 25 %

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Swedes Iron ..... dis 60&10 %
Gimp and Lace ..... dis 60&10 %
Copper Tacks ..... dis 55 %

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Oneida, Imitation, H. & N ..... dis 60 %
Blake's ..... dis 40&10 %

Vises.—Simpson's Adjustable ..... dis 25&5 %
Howard Vise Co ..... dis 25 %
Prentiss' ..... dis 20 %

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Browne's Flexible Rubber ..... dis 30 %
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Babcock's No. 4 ..... ℔ gross 4.15

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Washburn Galvanized Barbed ..... ℔ ℔ 5 ¢

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Girard Mfg. Co ..... dis 60&10 %
Girard Agt ..... dis 70&10 %
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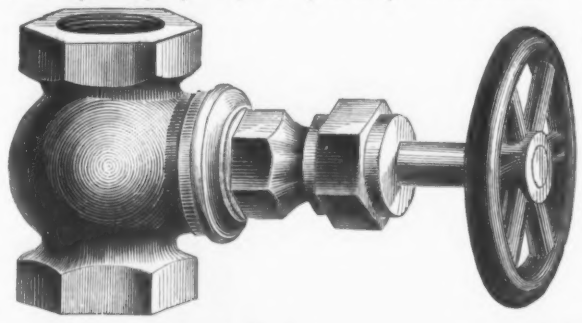

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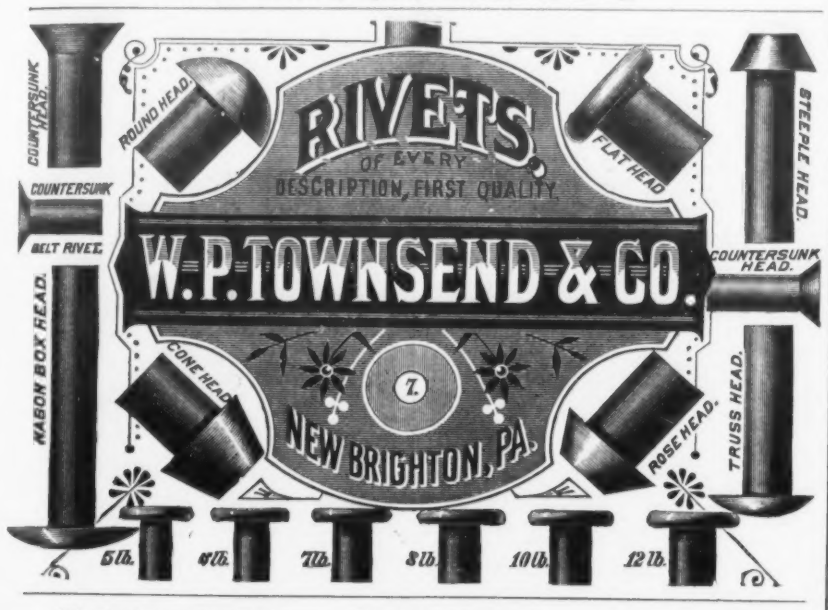

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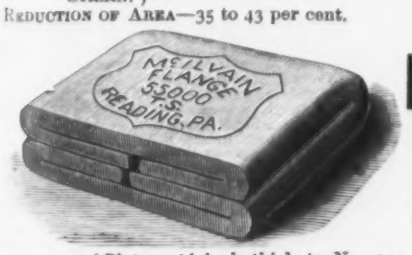

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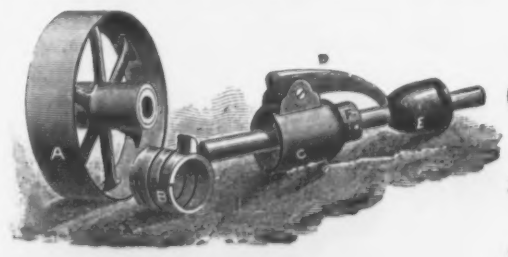

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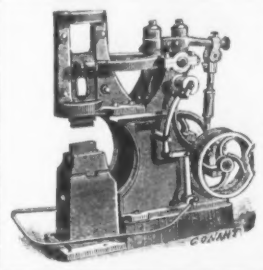

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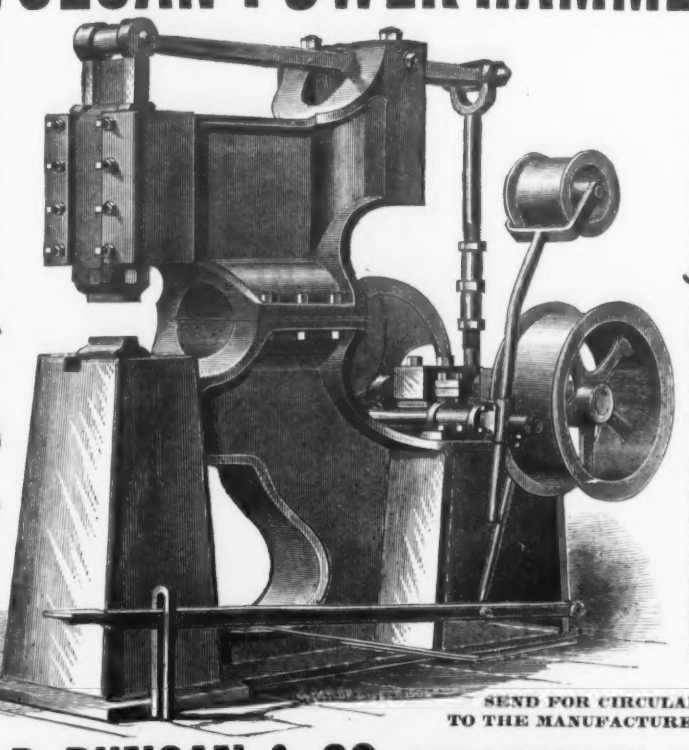

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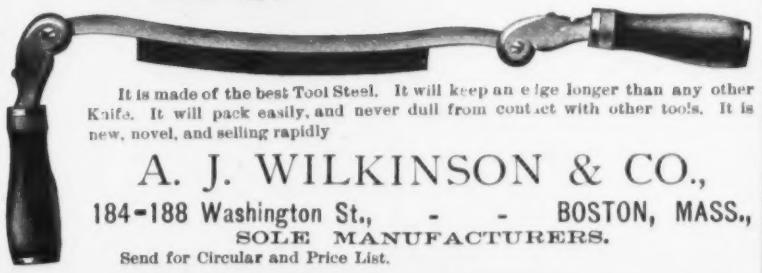

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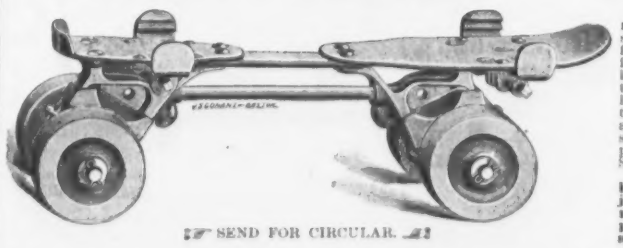

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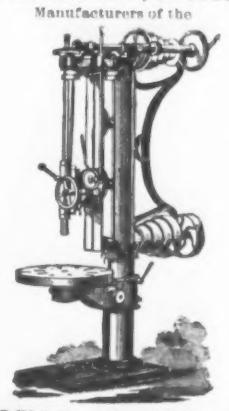

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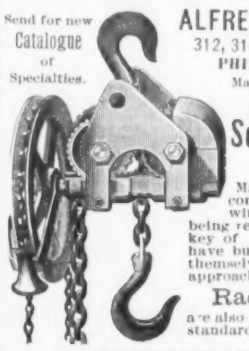

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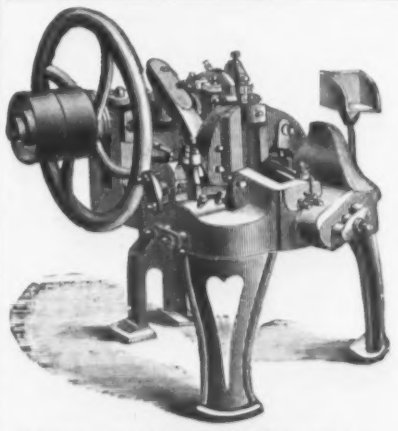

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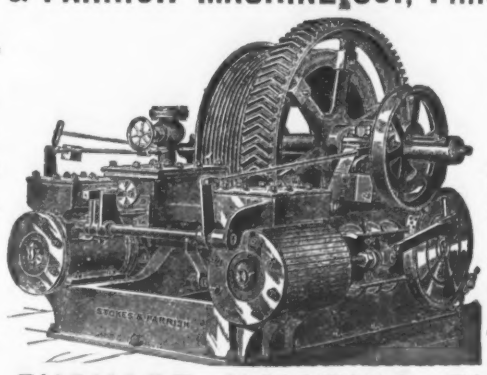

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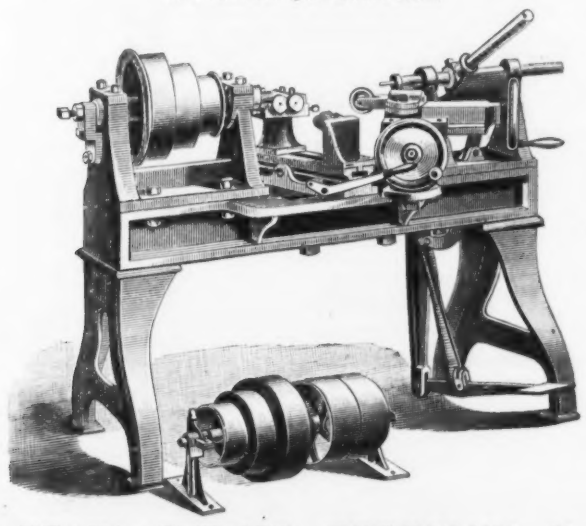

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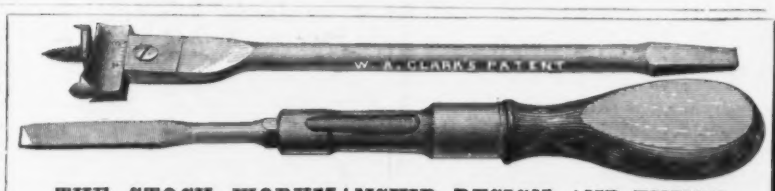

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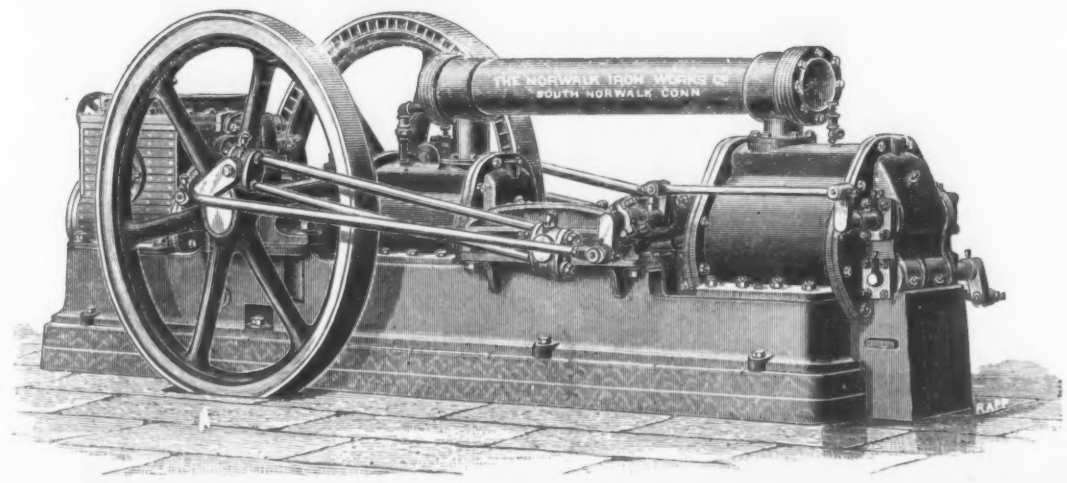

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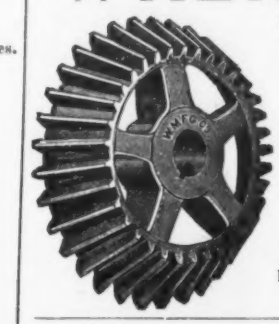

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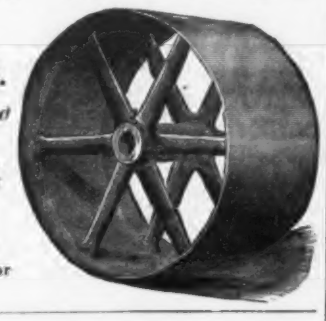

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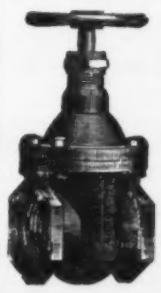

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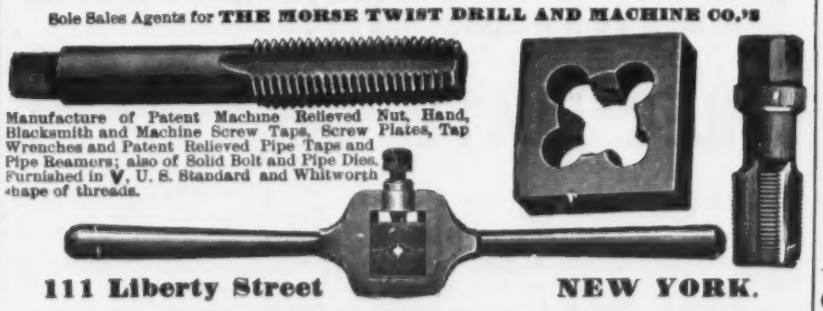

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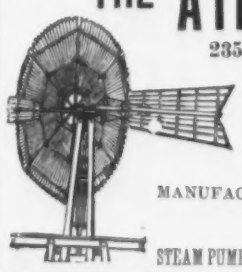

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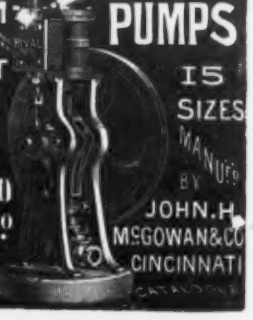

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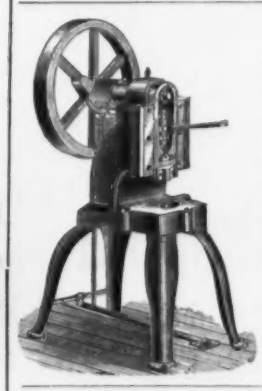

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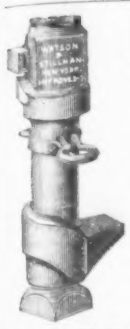

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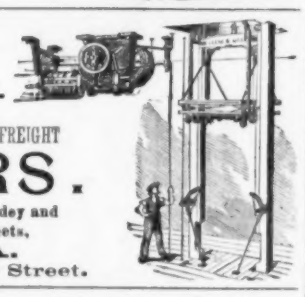

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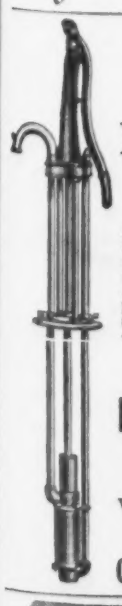

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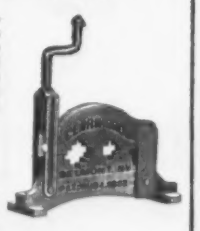

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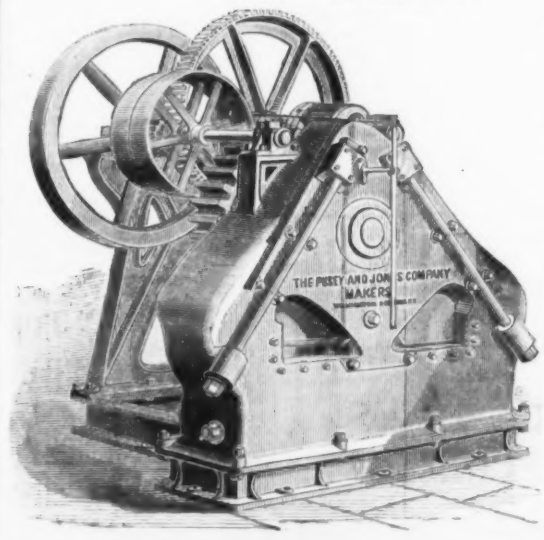

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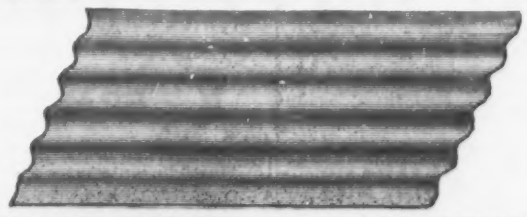

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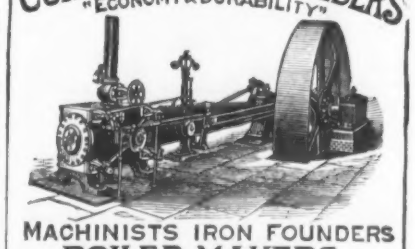

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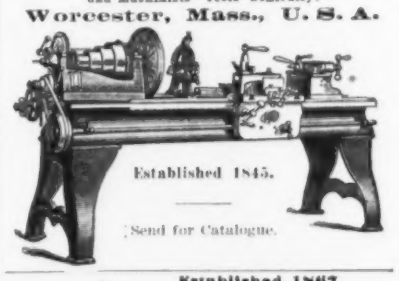

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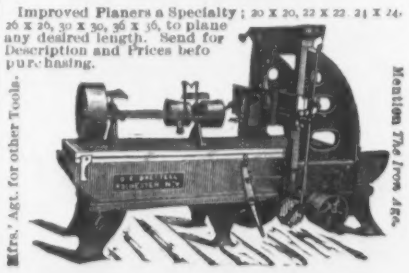

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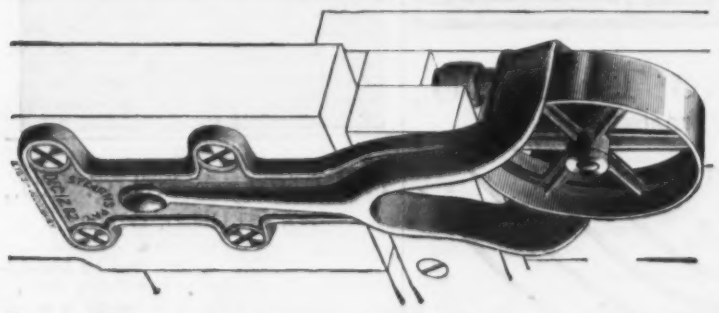

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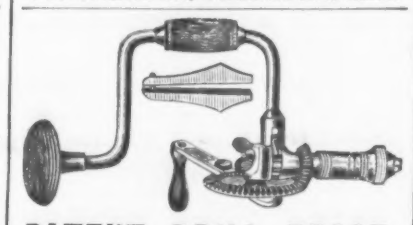

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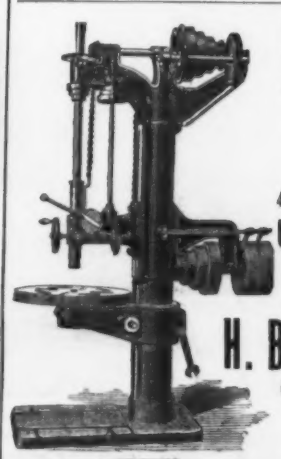

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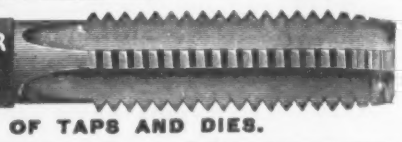

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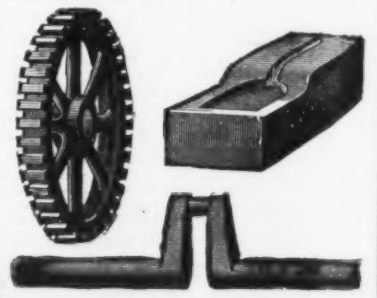

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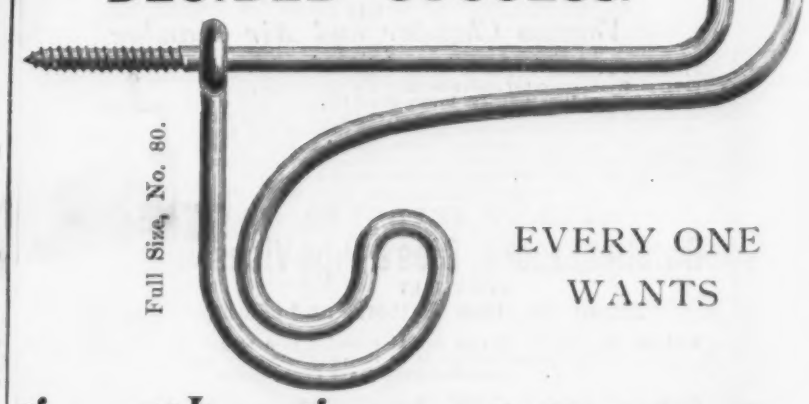

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